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FOUR DECADES  
WITH  
THE STANLEY WORKS  
1889-1929



ETHELBERT ALLEN MOORE

*Painted by Irving R. Wiles for the Directors of The Stanley Works 1923*

FOUR DECADES  
with  
The Stanley Works  
1889—1929  
by  
ETHELBERT ALLEN MOORE

Privately Printed  
1950

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## CHAPTER I

### PREPARATION

THE STORY of my life, except my connection with The Stanley Works, is told in *Tenth Generation*. That book was written primarily for my family and personal friends, and also to record the life of one Connecticut Yankee in the last half of the nineteenth and the first half of the twentieth century. *Four Decades* is not intended to be a history of any period of The Stanley Works, although there are some facts taken from the books of the Company before my time. It is rather a record of *my* knowledge of, and part in, the development of The Stanley Works from 1889 to 1929. As I wished to complete two books and print them at the same time, and as many years have passed since I began writing them, I have made no effort to have it appear they were written about the time of publication. In fact, much of this book was written soon after I retired in 1929, much of *Tenth Generation* later. The reader will, therefore, consider "now" the date when the writing was done, between 1930 and 1949. There is also recorded in the other book my debt to Mr. William H. Hart for offering me a position in The Stanley Works, of which he was then president.

After graduating from the Hartford Public High School, I had worked for about two years with the Bradley and Hubbard Manufacturing Company in Meriden and had learned from experience and observation something of a successfully conducted business. It was most fortunate for me that the two positions occupied while with that Company brought me in touch with so many of its activities. I came into close contact with the men, the superintendent and his assistants, underforemen, and others of greater or less authority, and many office men. I had a slight acquaintance with the two principal owners who gave their names

to the Company. I had been given my position by the General Manager, Charles F. Lindsay, who was "tops," as they now say, in conducting the business.

My duties took me into accounting, including cost work, the intricacies of making delicate dies, the repairs needed on all kinds of machinery, from the Corliss engine that converted the steam into power, to a simple buffing lathe with its speed and unsatisfactory bearings. Ball bearings came into such use later.

I had never been quite satisfied in my decision to give up a college education. When the opportunity of teaching school presented itself with the accompanying leisure (I thought) and long vacations for further study, it seemed best to make a change. My admiration and affection for Mr. Lindsay and frequent visits to him continued until his death. When, after teaching school for two years, the last as principal of the Center School in Watertown, Connecticut, it seemed improbable that I could advance very far without a scholastic degree, I decided not to allow my name to be considered for a third year. This experience in teaching school had, at an early age, compelled me to take responsibility and make quick decisions and it was of inestimable value to me not only in my first years at The Stanley Works but also throughout my life.

On November 30, 1889, I began a service that was to be my life's work: for almost forty years I gave loyal devotion to the development and to the interests of The Stanley Works of New Britain, Connecticut, and, with the same thought for its welfare, resigned all responsibility and my position as active head of the Company as soon as I believed such action would benefit the Corporation. I have long had it in mind to write an account of my connection with The Stanley Works, though well knowing that as the years pass but few people will be interested in it. Nevertheless, there may be a few who in the days to come will want to know something of the early years of the Company and will be grateful to anyone who has made a record of the progress of the Corporation during his connection with it. During all its one hundred years, I believe no one of its officers has ever done



this for the future. In the past some officers have been interviewed on special occasions by professional writers. The secretaries' books of the meetings held and important actions taken are a faithful record, but no one has essayed to take the particular period of his service and tell from beginning to end an intimate story of his connection with it. That and that only is what is here attempted.

I presume in this year 1933 my preparation for active participation in the affairs of the Company would be considered meager. However, I had some advantages which helped me materially and no doubt had much to do with having responsibilities placed upon me within a few years after entering the employ of the Corporation. My ancestors, for three generations before mine, had been interested in manufacturing and activities requiring mechanical skill and administrative ability. My great-grandfather Roswell Moore, and his sons and grandsons, had not only familiarized themselves with making and repairing the machinery, wagons, etc., used on a large farm, but in running sawmills, stills, gristmills, woolen mills, machinery for making screws, and mechanical work in the development of their cement industry. They improved materially the processes of making buckwheat flour and developed a sale for the improved product throughout the state. By inheritance I should have had fair mechanical ability. I was born on my father's small farm in Kensington and as a boy had worked on it helping to make repairs on the machinery and to overcome the many obstacles in the operation of the farm. I had also in spare time worked for my Uncle Roswell in the shop of the Moore Manufacturing Company and could use simple machines and forging tools. Thus when first employed by The Stanley Works, little time had been lost in developing whatever ability came to me at birth for taking my part in the development of the Corporation.

## CHAPTER II

### EARLY RECOLLECTIONS AND PERSONNEL

**I**N 1889 The Stanley Works had been in existence almost half a century. The Company had had on the whole a hard time of it. Its growth had been slow, profits small (except during the war period), indebtedness large. The public had little confidence in the Company as an investment, but the hardware trade had great faith in its methods of doing business and in the quality of its products. The reputation which the Company had established for fair dealing and excellent products proved a great asset in succeeding years.

The only factories of The Stanley Works were in New Britain. Frederick T. Stanley, the founder of the business, first built a small shop in the rear of his home, on the corner of Washington and Lake Streets, just south of the steam railroad tracks. As the business grew a wooden factory was built in the triangle now owned by the American Hardware Company, just across Lake Street to the north. This property was bounded by Lake, Washington, and High Streets, and by the railroad right of way on the north, with the apex of the triangle toward Washington Street. In 1872 the main business (hinges and bolts) had been moved into new brick buildings on Myrtle Street and the old wooden one, then vacated, was later fully occupied in the manufacture of tacks, brads, and small cut nails. This wooden building was destroyed by fire in the early 'nineties and the tack business discontinued.

The new Myrtle Street plant originally consisted of one three-story-and-attic brick mill construction building, about 200 feet in length, with powerhouse, storeroom, and a few auxiliary buildings. The same year, in June 1872, the directors had authorized another similar building, about 112 feet in length, to extend east of the first building. This was not built, however, until 1876. The first structure was called No. 1 building and the second

No. 2. Some years later I reconstructed these buildings, also No. 3 building referred to later on. We put in new foundations for the posts which were increased in size, and pilasters were added to walls. All of this work was done by our own force, without the employment of an architect or contractor. We converted all three into five-story buildings, doing away with the fire-trap attic. The roofs and top floors were made of cinder concrete when rebuilt. After reconstruction the buildings vibrated far less when operating heavy machinery than as three-story affairs. The No. 3 building was similar to the others, 125 feet long and extended west toward Curtis Street.

I probably remember the men filling the positions at the time I first became acquainted with them better than afterwards, for first impressions seem to register more distinctly because of their novelty. William H. Hart was President and Treasurer, then about fifty-five years old. He had been the dominant personality in the Company for years and was still full of energy, and untiring in his devotion to the business. His ambition for the development of the Company was unbounded. The Company had started making door bolts and begun the hinge business and later the butt manufacture at a time when there were excellent firms more favorably located. With courage Mr. Hart had brought the Company through the difficult years after the Civil War. He had overcome financial difficulties and, with improved methods of making and packing, the Company had become a formidable competitor in the three lines, and was gradually becoming their best and largest manufacturer. A man of fine character, excellent habits, friendly and companionable, full of fun in his periods of relaxation, he was devoted to the Company's business and ready at all times to sacrifice his own interests and those of his family for its good. He was a man of great determination, strong likes and dislikes, and an individualist, the product of the times and his particular environment.

George P. Hart, eldest living son of the President, had charge of the sales of goods in the Middle West and Pacific Coast, travel-

ing most of the time. He was then a little over thirty years old and beloved by all the force as well as his customers. He had so managed the sales in his territory that it was the most profitable business of the Company with prices of the same goods well above those in the Eastern markets.

L. Hoyt Pease was Secretary of the Company. He had begun work in the shipping room years before and, I think, like Mr. Hart had had experience in no other manufacturing company. His faithful attention to his duties, his trustworthiness and careful thoroughness in everything he undertook, had resulted in much responsibility being placed upon him both in the Company and city. He was not only Secretary of the Company, but was responsible for most of the sales outside of New York and the Middle West and Pacific Coast. He had been Mayor of the city, was treasurer of the First Congregational Church, and chairman of the finance committee of the Board of Education.

Frederick W. Benham ran the tack factory and figured most of the costs of all goods. He assisted the President in almost everything he did. Harris B. Humason had charge of the payroll and looked out for what advertising was done, planning and preparing all the work personally. Alfred Judd was in charge of the shipping, Richard Porter of the invoicing. Mr. Hart's son Howard was working into the business. William E. Stevens was in charge of packing the goods. Fred S. Seymour had gone to the war and come back a Captain, used to military methods, and was in charge of the rolling mills and butt department. In Mr. Hart's absence, which was frequent, he was looked to as in charge of the plant operation, although some of the contractors did not acknowledge his authority, which had never been directly conferred upon him. Old Captain Thomas Tracy, formerly in charge of the machine shop, only appeared occasionally to get his pension, for he had been succeeded by a man who later went to the Thompson Houston Motor Company of Lynn, Massachusetts.

This, then, was the skeleton of the personnel that conducted the business. The only men of importance in the Company elsewhere were Peter McCartee, then or later Vice President of the



Company, and in charge of sales at the New York store, the southern states, and what little export business there was, except in Canada. Thomas Henry Newman, a partner of Caverhill Learmont, Limited, Montreal, had an arrangement with L. H. Pease, Secretary, for selling the product in the Province of Quebec and the Maritime Provinces of the Dominion—as I remember it, he usually appeared in a silk hat, Prince Albert coat, and side whiskers, called “burnsides.”

The original Myrtle Street plant did not occupy all of the triangle bounded by Curtis and Myrtle Streets and the railroad. The Corporation owned quite a piece of land at the east end of the triangle. All along the Curtis Street frontage, east side, were small dwellings, and north of these Mary Meade had perhaps an acre of land where she raised her potatoes and kept her cow.

The eastern portion of the main buildings had a basement which made the second floor one and one-half stories above the sidewalk on Myrtle Street. Here was The Stanley Works' office, about forty feet square. High bookkeeper's desks, a press to copy all letters and one typewriter for the single stenographer, or “typewriter,” as she was generally called. Two small private offices, one for the President and the other used by his assistant and cost clerk, where the single telephone and the watchman's time clock, recently installed, hung on the wall. In a small enclosure at the head of the stairs a settee supported high and low either to be taken into the President's office or interviewed by a foreman or contractor needing a “hand.” The washbowl—cold water only—was in the adjoining packing room. The one closet was off the Main Office stair-landing between floors. One small immovable pane of glass with an interior outlook lighted the place enough to see where you were but not enough to read. I remember I lost a five-dollar bill somewhere about the office and posted a notice. Two weeks afterward Eddie Irving found it on the floor of the dingy room where it had rested undiscovered by eye or broom for a fortnight.

Most of the goods were manufactured under a contract system whereby a foreman hired his own labor and performed certain

operations for a specified sum, although in many of the auxiliary departments and those common to the whole business, like the shipping room, day or hourly wages were paid. In one or two departments the manufacture of the entire article was contracted for. The payrolls were made up by the Company as ordered by the contractor and charged against his account. This system was common to most of the industries in town. It resulted, as a rule, in the building up of units within the Corporation that were difficult for the management to deal with and which underpaid the laborer and overpaid the contractor. However, it probably served to reduce costs and may have been a step toward more scientific and equitable methods of wage payments later.

In 1889 no one in the Company thought of it as small. It had been in existence almost half a century. To Mr. Hart it was his life, and more important to him, small as it was, than it ever could be to anyone in later years, no matter how large. His devotion to the Company and pride in it were so genuine that they laid a foundation for loyalty that still exists to a remarkable degree. It is difficult, however, for us now, forty years later, to comprehend how small in size and weak financially the Company was in 1889 when I entered its employ.

CHAPTER III

COST WORK, FACTORY SYSTEMS,  
AND ORGANIZATION

WHEN I WENT to work I was initiated into office work of various kinds until I could start on the work I was hired for, viz.: to get costs of the manufacture of the numerous articles made. I checked up invoices, wondered whether 2 x 14 steel was two inches or feet one dimension and whether fourteen was the length, later finding everybody else knew two was the width in inches and fourteen was the gauge that indicated its thickness. I made out invoices for tacks. There would be a list price for a tack by the dozen papers. Most of the varieties were packed in three sizes—full weights, half weights, and quarter weights. The tacks were finished in several ways. This was all bad enough, but the real trouble came with the discounts. A discount from the list of 90-50-10-10-10-10-10-10%, although unusual, was, at one time, the regular price. Furthermore the same tack had a different list price for different colors or finishes and also a different discount. I never was much with the end of my pencil and so the invoices I finally managed to produce were corrected and recorrected until the ink eraser rubbed through the paper. They were a sight.

Among the many things I did when I first went to The Stanley Works was the preparation of the payroll for the Tack Shop which was located east of High Street. A good many interesting things happened in connection with that job. A son of one of the stockholders worked at a bench with the girls in the packing room and was paid, as they were, according to the number of packages put up. The Stanley Works' payroll system, in order to save clerical work, paid each week the whole number of dollars due to each worker and carried forward to his credit the amounts less than one dollar. At the end of the month the payment was

made in full. The young man usually earned two or three dollars. On one particular week one of the vouchers given him for work, which he had done, evidently had been changed. On investigation it was found it had been raised ten cents. It was difficult to imagine why anyone would do such a thing for so small an amount until it was discovered that he had ninety cents back change and the ten cents would give him an extra dollar to spend that week.

One night that first winter I was a little late with the payroll and therefore ran down the railroad right of way between the double tracks. The outlet from the Russell and Erwin Pond flowed under the tracks just west of High Street. As it was almost dark I ran off the abutment head first into the water, luckily escaping the opposite stonework and the ties on either side. I hung on to the payroll all nicely arranged in envelopes in a cardboard box about two feet long, climbed out dripping wet, and paid off with a rather damp payroll.

I was soon glad to be of help in other departments of the Company and before long began my work in establishing a cost system. This interested me greatly and for several years I devoted myself to it. The different departments were quite independent in their operation and conduct and furnished an opportunity for comparison of methods and processes. I soon came to see that my greatest value to the business was to be, not in tabulating what was being done, although that was what I was hired for, but in making suggestions for reducing costs or improving the product. My figures gave me a better opportunity for this than anyone else in the organization who would take time to study them. I, therefore, began to employ others to record what was being done, devoting most of my time, not needed to direct their work, to studying methods, processes, and to making suggestions for their improvement.

The factory was divided into departments. Some of them were conducted by a foreman hired on a salary basis, while the manual workers were paid by the hour. Most of the departments, how-



ever, were separate kingdoms presided over by an emperor called contractor. In his particular department his word was law and for his time and actions he was, in actual practice, accountable to no one. At the beginning of the year the President and he agreed on prices for doing certain work on the company's machines. Then for a year the contractor went to it to reduce his costs by using cheaper labor, improving his processes, or making the workers produce a greater product to hold their jobs. The departments so conducted *did* do more for improved processes than those conducted by foremen hired on a salary basis. The latter were paid a salary, had keys to a back gate, came and went when they felt like it, and were little interested in their costs. More product always seemed with them to mean more men at day wages.

As a matter of fact there was no good organization in The Stanley Works when I went there. Almost everything had to go up to the President for a decision, and, as Thomas Corscaden, an inventor who had recently come to the Company, said, "He is too busy with the business to do business." Of those on a salary basis conducting the factory work, I should in justice say Captain Frederick Seymour, who had charge of several departments, conducted them with ability, energy, and faithfulness. His ability merited greater responsibility, and soon after I came he resigned to go into the real estate business in Chicago.

In my service in Meriden it was not difficult to perceive that there were limitations to the growth of any organization under the *personal* direction of one man. The work of a strong man, dominant and aggressive, probably was the reason many of our New England industries survived the trying period after the Civil War. That was the situation in Meriden and now again in New Britain. The time had come in The Stanley Works, however, if it were to grow, for an organization that could expand, and in which many capable men could work harmoniously together. Much of this I recognized at the time. My departments, almost from the beginning, were well organized with responsi-

bility definitely placed. Promotions were made for merit only, no favorites, but fair treatment to all; and perhaps harsher treatment for slackers or inefficient workers than in my mellow later years.

## CHAPTER IV

### BUSY YEARS

**T**HERE HAD not been much incentive for young men of ability to enter the employ of the Company, and early in my endeavors for better organization there seemed to be a dearth of suitably educated young men. Notwithstanding this condition, the loyalty of workmen and of those in positions of trust to the Company was remarkable, and employer-employee relations most cordial. A cousin of mine was graduating from the Massachusetts Institute of Technology, and I asked him to give me the names of a few outstanding men in his class. This resulted in my hiring three men, two of them now for many years in positions of great responsibility with the Company. However, promotions were generally made from the ranks, many being local young men. Although the Company was then very small, there were so many activities which really needed a better organization for their control that it looked to some officers, at the time, as though paying for the overhead being added would break the Corporation, and they did not hesitate to say so.

For the proper organization for growth and control we soon had replaced the shop contracts with a piece-work system. In 1911, I spent a day at his home near Philadelphia with Frederick Winslow Taylor, a pioneer in the principles of scientific management and methods of determining fair price rates.<sup>1</sup> The Company benefited greatly from it.

During my first years with the Company, the regular books were an obsolete system, and so kept that they could not be used in connection with a cost system. At my suggestion and under my supervision an entirely new system was installed which enabled the cost department to obtain fairly accurate costs. This change in

1. In Europe his system was called Taylorism. In America he was called "Speedy" Taylor.

the books not only resulted in much more accurate costs, but incidentally also increased profits. I remember especially the facts it disclosed concerning the most important line made. Stanley steel butts for hanging the doors of large buildings, hotels, etc., were just beginning to replace solid bronze and cast or malleable iron ones. The Stanley Works was making three grades of plated steel butts, numbered in order of price, construction, and finish, 237-239-241. Every effort was made by the sales department to have the high-priced 237 used wherever possible. I found, when proper costs were determined, that 237 was sold at approximately 20% loss, while the humble and neglected 241 was very profitable—the only bronze-plated door butt not sold at a loss. The accurate costs also disclosed the effect of volume on costs, knowledge of which influenced the Corporation in having at one time considerably more than one half of the business of the country in several of its principal lines.

Later I devised and installed an inexpensive system of obtaining inventories which allowed a quite accurate statement of profits or losses to be made each month. This system of inexpensively keeping a running inventory has been continued until the present time, and has proved so reliable that in one or more years it has been relied upon for the yearly statement. From that time in the 'nineties I never lost interest in having correct information readily available no matter what the cost. It is hardly believable, but until these changes were made there were no good figures of profits or amounts invested in inventories except once a year. When we purchased the Canada Steel Goods Company I was surprised to find Arthur Hatch, the manager, always thinking in dollars while I had been associated in The Stanley Works with men who, as far as factory operation was concerned, always thought in quantities. For instance, Mr. Hart would estimate from observation that there were so many tons of steel. Mr. Hatch would figure out his purchases and sales in dollars, and would estimate his probable inventory of steel without ever seeing any.

For almost fourteen years after I first went to The Stanley Works my life was a happy one. I learned much from Mr. Hart,

Senior, and enjoyed his backing and confidence to a remarkable degree. This continued until his illness. Then his son, George, took his place, and a similar confidence was enjoyed. From 1894 (when I was thirty years old), the years of the following decade were indeed happy and useful ones. Having faith in my improvements and plans for reorganization myself, I did not have much difficulty in convincing someone else to adopt them and allow me to push them to completion. Under such favorable conditions, processes and methods were constantly changed, costs lowered, and the product improved. This resulted in rapid growth, and from 1899 until 1915 there was rarely a time when I was not buying property, building to extend the Works.

In 1899 I had been with the Company ten years. In that year the Bridgewater plant was bought and responsibility for its operation was added to my work. This required rebuilding the mill, becoming familiar with foundry practice and replacing the machine shop. It was also necessary to remodel one of the buildings to house modern machine tools. That year Mr. Hart built the No. 100 Building for the heavy hinge machinery. That was the first building west of Curtis Street. That year I constructed the underpass at that street to reach the lands west of it from the older buildings, using Hunt tip cars and hand labor. This was before the days when steam shovels were available. The filled cars, after being drawn out of this pit by a horse, went by gravity several hundred yards to the swamp at the west. The total cost per yard was nineteen cents. The Italian laborers, skillful with pick and shovel, were very faithful and hard-working men. The material was gravel—almost hardpan. The wooden building called No. 110 and a store shed were built the same year. The Washer Shop No. 101 and the Joiner Shop No. 102 were built about the same time. In 1905, No. 8 Storage Building was authorized. There was much difference of opinion in regard to its location and size. All of the manufacturing buildings had been 50 or 60 feet wide. It was my contention that the lands to the east where the products flowed for packing and shipping were limited and that storage did not require the same construction for light and air as manufacturing.

The building was built about 150 feet square and proved an excellent building for its purpose. Later when more storage was needed, the economy in the use of land was appreciated.

The same year, 1905, the power plant was built on the south side of the railroad tracks. The President and Charles E. Hart, at that time Mechanical Superintendent, built the plant. For some reason the underground tunnel and high-pressure steam pipe connecting the boilers and new Corliss Engine, were given to me to construct. The engineer's plan for the tunnel was very expensive. I substituted for the ordinary side walls of masonry and structural steel roof, an oval conduit of reinforced concrete. This could be made without journeymen, masons and with little steel—a removable form for the inside was used and almost no form for the outside. It proved very economical and serviceable. The Boston engineers had specified, according to my remembrance; a 12-inch steam pipe to carry the steam about 1,000 feet from boilers to engines. This with its nonconducting covering was very costly and would lose much heat and consequently power. Although not an engineer, I found that the actual time the high-pressure cylinder of the large engine was taking steam was less than 25%, that a much smaller pipe with its economy in first cost and operation would suffice if steam were passing through it continuously. At my suggestion, an 8-inch pipe, supplying a suitable, well-insulated receiver close to the engine, was installed at about one half the cost and proved most efficient.

In 1906, No. 9 building was built—nine stories, the first of any size of concrete in New Britain. This was also the year for the construction of the Office Building on Lake Street. No. 5 was also raised a story that year. This must have been a busy year, for the first purchase of land at Kent was made in 1906. Enough has been written to portray the many problems that were being solved and projects accomplished. The easy way had no place in my procedure. For instance, No. 8 building could have been built by making a contract for its completion. We had an excellent foreman in charge of construction. He built the No. 8 Storage building, contracting for the mason work only. The lumber, brick,

brownstone, and castings were all purchased by The Stanley Works' regular Purchasing Department. All labor except the mason work was performed by our own men.

In 1907 I was authorized to establish a small plant at Girard, Ohio, to try out the plan of a western plant, especially the labor problem. Two years later I purchased land in Niles, Ohio, on the Mahoning River, served by the Pennsylvania, Baltimore and Ohio, and Erie Railroads and began the construction of a modern hinge and washer plant. This plant was really a large machine where the raw material came in at one end of the plant and came out of the other end as a finished product. Every detail of building, machines and carriers and the exact location of each was determined and plans were complete on paper before construction began—the first instance of the kind in The Stanley Works' history.

There was little expansion for a few years after 1909, until 1914. In the meantime we had bought a little plant in Des Moines, Iowa, making a few screen catches and, also, the small hinge business of the Acme Manufacturing Company which was bothering the sales department with low prices for inferior goods.

Just before World War I, we had bought the control of the Canada Steel Goods Company. For many years we had hoped eventually to have a Canadian plant. Arthur Hatch, manager of this plant, the most progressive in our line in the Dominion, suggested that, instead of building a new plant, we buy control in the Canada Steel Goods Company. We did this in June 1914. That year we also started a large seven-story concrete building (No. 105) west of Curtis Street and a seven-story brick warehouse on Western Avenue in Chicago. These buildings the Directors voted to stop and roof over after we had finished the first story. Materials and labor were low in price early in 1914 and we had tried for once to make investment in permanent enlargement when men needed work and costs were low. For five years we had made practically no additions to the plant which was growing and war in Europe was imminent. However, our Board was pessimistic for the future and while the action was no doubt

a safe precaution, it proved an expensive one. A little later, in the midst of the war and its trying conditions, we had to finish No. 105 and also to build a duplicate of No. 105, viz., No. 106. During the war (1917) we also built No. 10—an eight-story building for storage and shipping of hardware.<sup>2</sup> In 1917, encouraged by the U. S. Government, and impelled by our own difficulty in getting enough steel, we built a small plant west of Burritt Street for making and rolling steel in narrow sizes. After the war this was abandoned and when we bought The American Tube and Stamping Company in 1926, most of the machinery was shipped there.

Soon after the Stanley Rule and Level Company was purchased it appeared that if the tool business were to grow and be developed, and a line of electrical tools manufactured, more room would be needed. Many of the departments were not operated efficiently for lack of room and light or were badly located. The Damon Lumber Yard was for sale and we bought it and built two modern concrete buildings at that plant in 1922.

I have perhaps recorded much in the last few pages that will be uninteresting to many. I have done this advisedly, hoping that to those who follow in the control of the company, it will be an incentive to continually develop it and keep it growing. The first quarter of the twentieth century was a great one for The Stanley Works. Except for the purchase of the Stanley Rule and Level Company, which was an unusual opportunity, the growth in the U. S. A. was the natural increase in good times of an aggressive, well-managed organization. It should also be recognized that during the first part of this period of rapid expansion, the Company was usually borrowing money.

The expansion of the business went on and money for growth was provided either in loans at the time or increases in capital by the stockholders. If we could invest money in the business that would give the stockholders a safe and better return than they could probably get elsewhere, we knew that there would be little

2. During the years 1914 to 1919 inclusive, we spent almost a million dollars in new buildings at New Britain alone.



difficulty so far as money was concerned. For years I kept on my desk a list of projects requiring money, listed in order, from the most, to the least, profitable investment. This list influenced our capital outlays and growth from year to year in no small degree.

It must also be remembered that during the last half century great progress has been made in mechanical engineering. One has only to read in Hiram Percy Maxim's *Horseless Carriage Days* of the difficulties in gas engine construction in 1900 to appreciate the conditions under which we worked at that time.

## CHAPTER V

### STEEL MILLS

**A**BOUT THE beginning of the century, all hoop mills from which we had formerly received our supply of steel had come under one ownership, the American Steel Hoop Company.<sup>1</sup> It undertook to raise our prices for rolling billets into strips to about double former rates. As a counter move we bought an old iron works at Bridgewater, Massachusetts, then idle for some years. Soon after we purchased the property, John Stetson, who had managed the plant for the Bridgewater Iron Works trustees, and then for us, died suddenly. After looking up all available mill men, I decided to take the advice of old William Scranton, of Scranton, Pennsylvania, to whom I had gone for information regarding applicants for the position. He said the best mechanics and excellent managers are in the East. Salaries are less, and when you transfer a man from one section of the country to another you never know if he will stay. So I went home, hired Charles R. Fitch, who had been associated with Colonel Alfred Pope in Hartford. He had never seen a mill for rolling steel, but managed the Works most efficiently until its removal to Connecticut. Under Fitch's direction we rebuilt the rolling mill and furnaces and rolled practically all, except very narrow, sizes of steel strips used in the Company's business until 1926, when we transferred the business to the plant in Bridgeport, which we had purchased that year.

Before 1880, S. R. Wilmot of Bridgeport, Connecticut, had begun to cold roll iron and do some manufacturing. Toward the close of the century, the company was known as the Wilmot and Hobbs Manufacturing Company. That company bought from the receivers of the Bridgeport Rolling Mill Company their mills for converting billets of steel into strips. The Stanley Works had,

1. Afterward absorbed by the U. S. Steel Company.

since its inception, been the principal customer of the Bridgeport Rolling Mill Company, had leased and run the mills for two years, and had hoped to buy them from the receivers. After the senior Wilmot's death, his son, Frank, was very active in developing the business. He purchased a large tract of land across the harbor in Bridgeport and erected an open-hearth plant for both making steel and rolling it into billets and slabs. He also erected a mill for rolling slabs into wide sizes of strips. Later the larger company was called The American Tube and Stamping Company. By 1910 Mr. Wilmot had involved his company in financial difficulties. Charles G. Sanford, President of the First Bridgeport National Bank, and Schuyler Merritt, afterward U. S. Senator from Connecticut, were on his board of directors. Wilmot had a stock control, but could not continue operations without further help from the bankers. The alternative was a receivership. First he came to The Stanley Works for help, but made no offer that could interest us. Then Messrs. Sanford and Merritt approached us and in 1911 we investigated and negotiated, but our Directors finally voted unfavorably on the best offer we, the officers, could obtain; although, I think, the latter would at that time have bought the plant. When all negotiations had ended, Messrs. Sanford and Merritt tried to induce me to sever my connection with The Stanley Works and take up the management of The American Tube and Stamping Company. They offered me all their preferred and common stock and promised to purchase enough to give me absolute control of the company. They were interested in underlying bonds of \$1,200,000 and might, if the company were not operated profitably, lose not only their stock, but also part of their investment in bonds. I talked the matter over with George Hart, who, in his father's absence, was acting head of the Company, and wrote William H. Hart, then in Nassau for the winter. Both agreed that The Stanley Works would be better off to have me as a competitor in cold rolled steel than any stranger operating the Bridgeport business. With their approval I continued my negotiations with Messrs. Sanford and Merritt, and met several of their directors for a

conference in New York, where it developed that they were not all in accord with the plan. I could have gone along, taking chances of dissension within the board, for I would have had the power to form a new one, but finally decided to stay where I was.

The World War came on two years later, and the company made considerable money during it. The shares rose in value, and if I had accepted Messrs. Sanford and Merritt's offer and sold the shares at one time, it would have resulted in a very large profit. If I had kept them until after the war was over, and if I could have done no better than those in control did with the business, the stock would again have been of little value.

Again, in 1913, The Stanley Works considered the purchase of these properties. I employed Julian Kennedy of Pittsburgh, an eminent and outstanding engineer in mill construction and practice, and submitted a report <sup>2</sup> to the directors showing that we could probably purchase the properties for \$600,000 and, by expending \$400,000, modernize the mills. My report showed that by assuming payment of \$1,200,000 of bonds and by the investment of this \$1,000,000 we could, on a product of only 60,000 tons, earn 15% on our cash investment. The Directors, however, thought best not to purchase. With the World War under way a year later, the mill would have proved a very profitable investment, and would have saved The Stanley Works a large part of \$897,945, the amount invested temporarily in a small open-hearth plant and strip mill at New Britain.<sup>3</sup>

More than a decade later, Kingsbury Curtiss, a lawyer of New York, controlled The American Tube and Stamping business and was sapping his strength in unsuccessfully trying to run it profitably. In 1925, while I was Chairman, but still responsible for conduct of the Company, I had a talk with him about selling. Before leaving for the South that year, I asked Mr. Bennett the President of The Stanley Works, to carry on negotiations with Mr. Curtiss. This resulted in The Stanley Works purchasing in the following year the entire business of The American Tube and

2. See end of chapter for Report A.

3. This was later partly scrapped and partly removed to Bridgeport.

Stamping Company, consisting of the steel plant and hot rolling mills on the east side of Bridgeport harbor, the hot mill on Cedar Creek and the cold rolling mills and manufacturing plant on Howard and Hancock Avenues. William H. Hart had negotiated in the 'nineties for the purchase from receivers of the original rolling mills, erected in the 'eighties by Messrs. Stanton and King, and now after a quarter of a century, and after we had invested money in Bridgewater and in New Britain in duplication of much of the plants, The Stanley Works came into an ownership which probably should have been theirs long before. Without The Stanley Works' New Britain tonnage for a backlog, I doubt if it would be possible to operate the Bridgeport Plants profitably, except during periods of great activity in the steel business as in the World Wars.

*Report A*

February 15th, 1913.

To the Directors of The Stanley Works,  
New Britain, Conn.

Gentlemen:—

I herewith submit a report made with the intention of putting before you all the information in my possession which will enable you to come to a decision in your own minds as to the advisability of The Stanley Works owning and operating the plants of the American Tube and Stamping Co. I appreciate that this report is quite incomplete, especially with reference to the stamping and cold rolling departments, for the reason that we are active competitors. If the directors of this company feel fairly certain that we want to take over these properties, every opportunity will be given us to go into the details of the stamping and cold rolling business, but neither the owners nor I have deemed that necessary up to this time. I might further state, that much of the information herein given has been submitted with the distinct understanding that it will be used only for the purpose submitted and is under no consideration to be used to the detriment of their company. If negotiations should fail, these reports should be returned and destroyed, in order to fairly carry out my agreements with them in regard to information about their plant.

## PHYSICAL PROPERTIES.

There are three distinct and separate manufacturing properties owned by the American Tube and Stamping Co., as follows:—

## EAST END PLANT.

The East End Plant consists of between thirty-five (35) and forty (40) acres, almost directly across the harbor from the railroad station, having a harbor frontage of 1800 ft., with a channel 12 ft. deep and about 200 ft. wide at low tide, and 700 ft., with a channel 22 ft. deep at low tide. The 12 ft. channel is to be made 18 ft. by the Government.

This plant was built ten or twelve years ago for making billets. Afterwards one mill for rolling billets was also installed on this same property. There is ample acreage for extension, both for billet making and for rolling steel, for years to come and this is, I believe, the finest single piece of property in Bridgeport and I imagine on the whole Connecticut coast.

This property is connected with the N. Y., N. H. & H. R. R. Co.'s track by an electrically operated road with a lease over the Connecticut Co.'s lines for 99 years and approved by the City Council and by special charter of the State of Connecticut. This line is operated by the A. T. & S. Co.

## HOWARD AVENUE PLANT.

The Howard Avenue Plant is located on both the N. Y., N. H. & H. R. R. Co.'s lines and the Bridgeport harbor on the opposite side of the main harbor from the billet mill. Billets are transferred across by the company's own barge, at a cost of less than 10¢ a ton.

This is the old Bridgeport Rolling Mill Co.'s property, together with the property of the Bridgeport Copper Co., and the property is bisected by a public street. It is in the heart of the manufacturing district and built up on all sides and surrounded by streets. (The Bridgeport Copper Co.'s plant is in the names of some of the directors of the American Tube and Stamping Co. and \$40,000.00 of the purchase price will have to be paid them for the property.)

On this property are located two hot rolling mills for rolling the billets into bands and facilities for pickling, shearing and shipping the material which is not cold rolled. The mills are congested and badly installed.

This real estate, however, is admirably suited to any kind of manufacture, as it has the advantage of both railroad and water front and has as good a labor market as there is in the United States. No better place could be found for a manufacturing business and if eventually the ma-

chinery should be transferred to the East End mill, the property would probably find a ready sale.

### HANCOCK AVENUE PLANT.

This plant is about one block from the Howard Ave. Plant and is connected with a sidetrack with the N. Y., N. H. & H. R. R. Co. and faces the tracks of that company on one side and is bounded on the other three sides by streets.

This is used for cold rolling steel and for stamping the steel into special shapes. It consists of cold rolling mills, one story high, together with three story buildings for the manufacturing business. The cold rolling plant is, I believe, capable of turning out about the same product that we do, namely,—about \$1,000,000.00 worth of material a year, and the stamping works may have a capacity of \$200,000.00 or \$300,000.00 worth of business a year.

This plant, like most of the others, contains good machinery, well designed and kept up in good shape but, from additions from time to time, is congested and not laid out along as broad lines as I would like.

### VALUE OF PLANTS.

I have not the inventory figures from the books for the different plants, but the company carries its Property Account on the books at something over \$4,000,000.00. Price, Waterhouse & Co., went through the books in 1909 and at that time stated that the actual cash cost of the property, as shown by the books, amounted to about \$3,250,000.00 and that the other \$750,000.00 “consisted of arbitrary additions made to the assets, not representing physical property although they may represent in part additional value”.

One day was given me, some two years ago when this matter was up before, to go over these plants, and I inventoried, in a superficial way, the cost value of the different plants as follows:—

East End Plant	\$1,298,000.00
Howard Ave. Plant	225,000.00
Hancock Ave. Plant	550,000.00
Total	<hr/> \$2,073,000.00

I presume that I overlooked a good many items. I have no doubt that it would cost to duplicate these properties, but with new buildings, machinery, apparatus, etc., somewhere between \$2,000,000.00 and \$3,000,000.00.

## STATEMENT OF ASSETS, LIABILITIES, EARNINGS, ETC.

The last statement I have, as December 31st, 1911, shows as follows:—

## THE AMERICAN TUBE &amp; STAMPING CO.

## STATEMENT OF ASSETS AND LIABILITIES

AS AT DECEMBER 31, 1911.

## ASSETS.

## CAPITAL ASSETS

Property Account		\$4,125,889.47
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## CURRENT ASSETS

Advanced Payments	\$17,207.86	
Invy. Mdsc. & Supplies	366,727.94	
Accounts Receivable	154,062.48	
Notes Receivable	4,160.41	
Cash on hand and in Banks	84,952.46	627,111.15
		<u>\$4,753,000.62</u>

## LIABILITIES.

## CAPITAL STOCK

Preferred \$1,400,000.00	} \$2,800,000.00	
Common 1,400,000.00		
30 yr. 5% Bonds of 1902	720,000.00	
10 yr. 6% Bonds of 1911	<u>400,000.00</u>	3,920,000.00

## CURRENT LIABILITIES

Notes Payable (Mdsc.)	79,833.00	
Notes Payable (Banks)	150,000.00	
Accounts Payable inc.		
accrued accts., wages, etc.	<u>66,855.80</u>	296,688.80

## RESERVE FUNDS

For Depr. & Ren.		23,156.80
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## PROFIT &amp; LOSS &amp; SURPLUS

	<u>513,155.02</u>
	\$4,753,000.62



During the year 1912 \$100,000.00 of the current liabilities was changed to permanent indebtedness and the ten year 6% bonds now amount to \$500,000.00.

I herewith give you statement from the books for the five years 1905 to 1909.

### AMERICAN TUBE & STAMPING CO.

#### EARNINGS.

Year Ending	Net Earnings from Operations	Interest on Bonds	Interest on Loans	Surplus for the Year
May 31, 1905	\$112,672.52	\$42,481.39	\$8,299.79	\$61,891.34
May 31, 1906	248,955.16	42,124.93	18,453.05	188,377.18
May 31, 1907	384,395.48	41,083.32	29,557.78	313,754.38
May 31, 1908	—37,737.76	40,083.32	39,643.47	—117,464.55
May 31, 1909	96,265.67	39,083.34	24,944.15	32,238.18

It is fair to say that in 1908 they had a long strike in their billet mill which, together with the drop in the price of materials after the panic and their contracts for raw materials which came during their strike, made the results that year disastrous.

It is also fair to say that no proper depreciations were probably made on the property during these years although they did charge to repairs and renewals something over \$800,000.00 during this period and added to their surplus, as the statement shows, something like \$478,000.00

It is, however, true that the plant during the last seven years has not earned any money, if proper charges are made for depreciation and if renewals and repairs have been properly charged off. They, however, tell me that they have, during the last year, gotten the plant into shape where they are showing a profit each month.

#### CURRENT ASSETS.

In addition to the value of the plant, the company is accustomed to have \$600,000.00 to \$800,000.00 of current assets for its operation.

#### CURRENT LIABILITIES.

I should judge that the current liabilities were about \$300,000.00 less than the current assets.

## CAPACITY OF PLANT.

Judging from the amount of their sales and from a knowledge of their cold rolled steel business, I estimate they have been marketing a yearly tonnage from the different plants of not less than 30,000 tons, and in some years probably more than that, divided about as follows:

Cold Rolled Steel	15,000 Tons
Stampings	2,000 "
Hot Rolled Steel } Billets	13,000 "
	<hr/> 30,000 "

The Stanley Works, without reference to their Niles Plant, will consume about 30,000 tons, 7,500 tons of which has come from and is included in the American Tube & Stamping Co.'s tonnage. It would, therefore, be necessary to provide for the two plants 50,000 to 60,000 tons of billets for the operation of the two plants. The present open hearth furnaces at Bridgeport have a capacity of 40,000 to 50,000 tons of billets per year.

## OPERATION OF PLANT.

Gross sales have been as follows:

Year to May 31st, 1905	\$1,789,587.19
" " " " 1906	2,254,300.48
" " " " 1907	2,397,060.19
" " " " 1908	1,502,564.57
" " " " 1909	1,837,167.20

I have felt from my own knowledge of the cold rolling and stamping business that those branches of the American Tube and Stamping Co. could be operated quite profitably and put us into a much stronger position in New England in the steel cold rolling business. Their capacity is evidently about the same as ours and our sheets show that during the last seven years we have made earnings in the cold rolled steel business of a little over \$80,000.00 a year.

Their stamping business takes in a larger and different line than our stampings and would add to our line and capacity quite materially and from our knowledge of this business, it should be a profitable one.

As a matter of fact, I think all of the officers of this company have felt that there would be no difficulty in operating the cold rolling and stamping plants of the business at a profit and to the advantage of this company in many ways. We have all, however, felt that fully one-half the purchase price and more than one-half the original cost was tied up in the East End Plant, consisting very largely of the furnaces and mills for making steel billets, and it has been a question in our minds whether that plant could be operated profitably. This portion of the work is divided in two parts:

first,—the making of the steel by melting the metallic charge of pig scrap, etc. and pouring same into the ingot molds;

second,—uniformly heating these ingots and rolling them into the proper size billets, such as we use at our one mill at Bridgewater and as are used by the three American Tube & Stamping Co. mills called hot rolling mills.

In accordance with your suggestion and vote, I employed Mr. Julian Kennedy, the most eminent engineer in this line of work in the country and perhaps in the world, to advise us. I went over the matter carefully with him at Pittsburgh in two different interviews. At the first interview I found he was somewhat prejudiced against the possibility of making billets in the East in a small plant in competition with the West. At the second interview, without the figures of operation but with the costs of the materials, he stated that he thought it quite probable that we could operate the plant and produce billets cheaper than we could buy them. I, therefore, made an appointment with him to go over the plant at Bridgeport, which he did.

He has stated from the first that it would be impossible for him, with no knowledge of the cold rolling and stamping business and without knowing our own conditions, to advise us definitely whether we ought to buy the plant or not.

He has also made it very plain from the start that the interest and depreciation (in other words, the cost of the plan) would be a very large factor in determining the matter. For the sake of getting the matter before him, I have told him I thought the plants could be bought for \$1,500,000.00 or less, including everything. I judge there are assets above liabilities invested in scrap and work in process to the amount of at least \$300,000.00, which would leave the plants at \$1,200,000.00 or less. I believe the cold rolling and stamping and Howard Ave. plants could be taken over and capitalized at \$600,000.00 and be made a paying business. I, therefore, told him that he could advise us on the basis of paying \$600,000.00 for the East End Plant.

I also asked him to let us know the amount that ought to be invested

to produce 80,000 tons of billets per year and the maximum cost that we ought to expect, under fair operation, above the cost of the metallic mixture in the open hearth. He has written the following letter, which I quote in full.

Referring to the mill of the American Tube & Stamping Company, which we visited at Bridgeport, I should consider this mill at a price of \$600,000.00 as being cheap. There is a good deal of good machinery in connection with it, though the furnaces and soaking pits are light in construction and pretty well run down. The mills and engines seem to be very good. If your Company should purchase this plant, I would recommend an expenditure of about \$400,000.00 additional on it, in order to add say three new furnaces and remove one of the present furnaces and install an additional soaking pit, together with such other minor repairs and improvements as may be found necessary. If this were done I think you could reasonably count on a production of 80,000 tons of blooms per year at a cost not to exceed \$8.00 above the cost of metallic mixture in the open hearth.

In this connection, I wish to say that I believe he is right in recommending \$400,000.00 to put the plant in first class shape with ample capacity to produce 80,000 tons of billets. I think, however, it would be the policy of The Stanley Works, if they should operate this plant, to sell few billets and more of the product in a more highly finished state and to produce not over 60,000 tons of billets the first year or two. This would require one additional furnace and one-half the provision for the soaking pits, leaving the matter of the removal of one furnace and the building of the additional furnace for the future. I do, however, believe that at least \$200,000.00 to \$250,000.00 should be spent upon the plant soon after its control by this company.

For the eight years past, the American Tube & Stamping Co.'s mix of metal has been \$15.79. It probably should not have been over \$15.00, but estimating that it might have cost \$15.50, it would have brought the average cost of billets for eight years to \$23.50. The average cost of the billets purchased by The Stanley Works at their mill during this period and the average cost of the American Tube & Stamping Co.'s billets have both been practically \$27.00 per gro. ton, neither of them varying \$.20 from that amount.

The question immediately arises, why should we expect to produce billets \$3.50 per ton less than the American Tube and Stamping Co. have done with the same plant for eight years? First, I desire to say that in larger plants a cost of \$6.00 for conversion of the metal into billets in place of \$8.00 is common and the cost will in future be continually reduced with the addition of every furnace until there are eight or ten furnaces or

enough to keep the mill rolling the ingots in constant operation. To-day the mill is operated less than one-half the time that the three furnaces now installed are. The costs of the American Tube and Stamping Co. during the past years have included all sorts of experiments in the way of new processes, have included a very expensive strike, have included the upkeep during periods when the plant has been closed down and have included many costly experiments. Further, Mr. Kennedy tells me that the operation of the furnaces themselves is still crude and can be improved materially. There has never been anything like uniform operation. In 1906 the ingots made ran over 60,000 tons and in 1911 32,000 tons were made.

While I have suggested that it would be possible to get along with a smaller expenditure of money than Mr. Kennedy suggests, it is a serious question in my mind whether the additional expenditure at the start would not more than warrant the extra interest, if it is possible for the company to finance it. We would, without doubt, make 60,000 tons of billets the first year at an average cost of conversion of \$8.00 per ton. If, by having adequate facilities and everything in first class shape, it were possible to reduce the cost of the entire product \$.50 per ton, it would mean \$30,000.00 on an investment of perhaps \$200,000.00 and I have no doubt that the expenditure of this money would so result.

The best investment in the billet plant on the basis of Mr. Kennedy's letter would show about as follows:

Billet Plant	\$600,000.00
Additions	400,000.00
	<hr/>
	\$1,000,000.00
	.....
Profit over purchasing billets—	
60,000 tons at say \$3.00	\$180,000.00
To which should be added \$.50 per ton which would be saved in the hot rolling mills from having more suitable sizes to roll than we can buy.	
	30,000.00
	<hr/>
	\$210,000.00
From which should be deducted the depreciation on the plant.	
	60,000.00
	<hr/>
	\$150,000.00

This matter of purchase has come up at this time from the fact that we cannot continue to hold our own in the cold rolled steel business and be at such a disadvantage as we are through the operation of the old plant at Bridgewater. If we are to erect a new hot rolling mill, it should either be located in New Britain or on tide water, and eventually much, if not all, of our outside cold rolling business should be conducted at the same point. If we conclude not to make this purchase, we shall still have before us the proposition of buying new property and establishing a new hot rolling plant.

Our present cold rolling mills at New Britain can gradually be used entirely for the preparation of material for the hardware business and in time the business of selling cold rolled steel could be entirely transferred to a location in proximity to the hot rolling mills.

I am free to say that, while we could probably get along for a few years with the hot rolling mills now owned by the American Tube and Stamping Co., none of them are designed on the most modern lines, and before many years there would probably be a recommendation to build, in proximity to the steel mill, one new mill for rolling billets into steel bands. Two of the three mills of the American Tube and Stamping Co. probably produce bands more economically than our Bridgewater mill and we could undoubtedly, with some slight changes, get along for a number of years and until it would seem a profitable investment of money to establish a new mill.

I have dictated this report (which has proved a long one), leaving out many facts which bear upon the matter and which I have been afraid to include lest it would make this report too complicated for anyone not familiar with the whole subject to understand.

I further desire to say that, if the directors think fairly favorably of this proposition, I would like very much to have them visit the Bridgewater mill, the properties of the American Tube & Stamping Co. and, if possible, to make a trip West, which I have had in mind for sometime to suggest, to look over the Niles Plant and while there go through a new, modern, steel mill.\*

Respectfully submitted,

E. A. Moore

\* Which was done by some of the directors.

## CHAPTER VI

### LIFE'S MIDSUMMER

SEVERAL TIMES I had been tempted by the offer of a larger salary by others to leave The Stanley Works, but had seldom considered such offers seriously. Even in the early years when my salary was hardly sufficient to cover a very modest way of life, nor later, was the Company ever asked for additional salary. Instead, it was always asked for additional responsibility. I realized that what little money was received for the first five or ten years of service would amount to little in the end, but that if, by the time forty was reached, a position of responsibility were occupied, there might be some twenty or twenty-five years of a fair income. I had always believed the Company could and would pay me what my service was worth. There were times when I could have demanded and received more, but from my own experience I had learned that in spite of effort to the contrary, one is bound to be over critical of an overpaid servant.

In 1902 I was almost forty years old, was building up the cold rolled steel business, was in charge of all production and most of the construction work, and yet had not been made an officer or Director of the Company. I was very ambitious, and looking back now realize that my impatience over delay and other stumbling blocks must have been at times difficult for the other officers to tolerate.

At one time things were not so comfortable for me. At the beginning of the century Mr. Hart was broken down in health and had suffered nervous prostration and some hardening of the arteries. During his absence his oldest son, George, and I worked most pleasantly together. He was, in his father's absence, the First Vice President in charge of the business. He specialized in the management of the finances and sales, and depended on me for the operation of the plants. We were each carrying our responsi-

bilities most successfully, and were free to develop the business without considering anyone's opinion but our own, subject, of course, to the approval of the Directors. We consulted and worked together with great confidence in each other.

When Mr. Hart Senior partially recovered, he came back into the business still the President. I was almost forty and he over seventy. It is easy to imagine how hard it was for him to see things going along better than ever, not knowing the reason for many changes, feeling not very strong and rather out of it because of his long absence. His friends tried to have him remain as President, but give up much of the active management.

Every worthwhile man in an industrial organization has his hopes and ambitions. At the end of every day that passes each man should be nearer his goal. Any action that defeats such progress in other lives is not considerate. One's life in industry might be divided into three periods: first, apprenticeship when learning what to do and how to do it; second, the productive period of life when one's power is at its peak, and third, the autumn and winter when life declines. In the conduct of a business like The Stanley Works, the people of the first period are necessary for its proper development, and are an expense as necessary and advisable as insurance. The people in the maturity of their lives carry the load and make the profit. This section of middle-life workers largely provides not only for the expense of development of others to take their places later, but also for the expense of the diminished productivity of those in the third period of life. There is no rule to tell when a man moves from one period into another, but there *is* a time in each employee's life when he is first a burden carried by those in the prime of life, then the time comes when he carries the burdens of others, and then, if he continues in the service long enough, he again becomes a burden. Where a company is owned by several thousand stockholders, they certainly expect its management to operate with the best machinery and facilities obtainable. To operate profitably a factory in which all the employees are old and are growing older and less efficient day by day is a most difficult problem.



For a time it was very difficult for me. I had been so happy in my freedom to prosecute the work in my own way that I felt the constraint. More than anything else I missed the hearty commendation and friendliness of former days and dreaded to have Mr. Hart's last days made unpleasant, as I feared they would be if I remained and did my duty to the Company.

My life after the first few years in New Britain was a very busy one and given up almost entirely to my business. At times I had an early breakfast alone, was at my office before seven and was rarely out of the Works before 6:30 P.M. My lunch hour was usually only an hour to an hour and a half. Sometimes when things were going wrong in some department I would for a month or two go back after dinner and work until 11 P.M. I was fortunate in having to look out for our supply of steel, which took me frequently on trips to Pittsburgh and other steel centers; and my control of the steel sales also took me to meetings of our competitors and broke the continuous grind of the factory responsibility. During these years, being an active and interested member of the Board of Directors of the Manufacturers Association of Connecticut also gave me some change.

Although the "Sherman Law," so called, had been passed by Congress, it had not been enforced, and in the 'nineties competitors got together, fixed prices and, in some cases, pooled their sales, penalized those who oversold, and subsidized those who did not. When we first joined our competitors in some of these practices I am not sure we even knew it was unlawful. When the fact was appreciated, ways to circumvent the law were studied and we joined our competitors in an association called an open price meeting, planned by a lawyer from Chicago. Theoretically it was not in restraint of trade, forbidden by the Sherman Law, but in intention and in fact it *was*, because the members did not adhere to the lawyer's exacting requirements. I came to the conclusion that the meetings were unlawful and withdrew, although most of our competitors continued as an association for several years and I believe were never prosecuted.

In looking over my old letter books, I am amazed at the things

accomplished in the years before forty, and how well most of them were done. Later my judgment was probably better, but a judicial mind is not always a forceful one. At that age with me to think it should be done was to do it. I marvel how few mistakes were made. In new processes and improved methods of manufacture my reasoning always was that even if one only out of five or ten were successful, it would probably pay for the others. In experience, however, my experiments were so carefully considered that they were rarely failures. I seemed to have a good organizing and administrative ability, coupled with an inventive turn of mind and some vision for the future.

My long absences in later life were perhaps more valuable to the Company than continued effort more or less dominated, or at least influenced, by interruptions of minor importance. Among the few papers preserved are nine pages of notes made in Florida during the winter of 1927-28, the year before my retirement. These notes are arranged in the order of their importance of accomplishment. Under "A" was the organization of the American Tube and Stamping business just purchased. With many suggestions not only for organization but also for operation. Under "B," Books, accounting, etc., was a plan to have each division responsible for the investment of its capital and expected to show a profit on it. Principles to be laid down for billing one department to another. Under "C," Sales organization with many details for improvement, etc., etc. I have told elsewhere of plans made on my long trip to China, when after several months' absence, on arriving home full of vigor, with such an agenda before one, accomplishment seemed easy.

## CHAPTER VII

### COLD ROLLED STEEL

IN 1870 The Stanley Works had been making hardware for almost thirty years. First bolts, then hinges, and later butt hinges, or butts as they were called by the trade. This was before the age of steel and the goods were made from iron. In August 1870, William H. Hart sent to Forestville some strips of iron from which he had removed the scale, formed in rolling the metal while red hot, by pickling in acid, and employed a brass mill, now the Bristol Brass Company, to pass the cold strips of metal back and forth between their rolls to improve its gauge and finish. By doing this he found he could substitute these planished *strips* for more expensive and highly finished iron *sheets* which competitors were using. This resulted, Mr. Hart has written, in great savings. In an interview given to the editor of the "Iron Age" in 1918, Mr. Hart, in trying to establish the date for first cold rolling iron, said, "In 1870 right after the Great Boston Fire . . . I bought a copper mill which had been through the fire and I bought it for the sole business of using it to cold roll our iron." In another article by him written in 1919, he refers to the Boston Fire as in 1871. The Boston Fire was in November 1872. However, The Stanley Works' records *do* show charges for rolling iron in Forestville in August 1870, and in establishing an early date for cold rolling iron, it is of little importance whether it was rolled in Forestville Brass Mills or rolling mills from Boston, which were, as Mr. Hart said, bought for that purpose. The fact is, Mr. Hart passed hot rolled pickled iron strips through rolls in August 1870, to improve their finish and accuracy of gauge. This was the first time iron or steel strips had been cold rolled in this country. For several years after this, pickled iron strips were carted by The Stanley Works to Forestville, reduced in gauge and improved in surface by passing a few times through the Forest-

ville mills, and returned to New Britain. Then the Boston mills were erected and put in use and in 1889 were busy planishing iron and steel strips solely for the hardware being manufactured. With the advent of domestic steel taking the place of iron and more expensive foreign metal, this process undoubtedly had much to do with the earnings and survival of the Company during the difficult years after the panic of 1873.

Mr. Hart never carried the process beyond his first early experiment of substituting iron for brass in the Forestville mills. The metal became hardened in the process of rolling and was therefore only reduced slightly and was not ductile enough for much manipulation in machines, or thin enough for many uses, but *would* form a hinge joint without annealing.

In 1889, the year I entered the employ of the Company, Howard S. Hart, a son of the President, was trying to see if a *business* could be developed in cold rolled steel. This was the first effort of the kind by The Stanley Works some eighteen years after Mr. Hart's original experiment in the Forestville mill. Howard soon left for Chicago to engage in the manufacture of cold rolled steel, and no provision was made at that time for continuing the manufacture or sale of steel to others by The Stanley Works.<sup>1</sup>

In 1892, three years after entering the Company's employ, the officers, at my solicitation, gave me permission to see what could be done in the development of a cold rolled steel business. My responsibility was not only to direct the manufacture, but also to control the sales and have complete charge of both. The only machines for cold rolling steel at that time were the two Boston mills Mr. Hart had purchased twenty years earlier, and two small mills that were not wholly needed for planishing the steel for the factory. At least one of these was bought at the time Howard Hart was trying to establish a cold rolled steel business.

There were no facilities for annealing any steel. The Russell

1. In 1877 Mr. S. R. Wilmot in Bridgeport was rolling iron or steel in a patented mill, and annealing the metal in a pit to prevent oxidation, as the brass mills were doing with brass metal. This company was later called The American Tube and Stamping Company.

and Erwin Manufacturing Company had erected, at the suggestion of Horace K. Jones, a small annealing furnace for some of their articles. These furnaces would take strips about six feet long. At first in the development of a cold rolled steel business in 1892, we sent all steel requiring annealing to them in short lengths for treatment. There were no facilities at that time for handling strips in coils at The Stanley Works.

I soon had bought and put in operation a large mill, annealing furnace, etc., and was launched in the business. It was slow work at first. There were some six or more competitors in the business, some with established reputations, and it was difficult to get a satisfied customer to take the risk of changing his source of supply. The first year I remember we could only sell some fifteen thousand dollars' worth of the steel, the next some thirty thousand, then sixty, then over one hundred thousand. After the experience of the first four years the progress was easier. In 1913 the sales were over one million dollars, and in 1920, before the purchase of the Bridgeport plant, over four and one half million at very profitable prices.

In 1892 I was under thirty and, with many duties in the hardware department, could spend only part of my time in developing this new business. Nevertheless, singlehanded for the first year or two, I found time to sell and prescribe the exact detail of manufacture of a constantly increasing though small business. Each year saw a satisfactory increase, however, and before long the cold rolled steel sales exceeded those of The Stanley Works when I entered its employ. The business was entirely different from the hardware business and the other officers knew little about it, except the results from the books. Instead of manufacturing the steel in stock sizes and then selling to a large number of customers, the steel was sold for a specific purpose to a consumer and then made with respect to his individual requirements. A separate organization was complete for production and sales, but depended on the regular departments for overhead where the two departments could effect economies by combining.

During the years that followed I applied myself to the prob-

lems of both production and sales. The experiments in fast rolling, straightening by different methods, flattening, cutting to lengths automatically, coiling, winding, cleaning, testing oils that would not stain the bright steel surface, pickling, annealing, etc., were then all unsolved problems. I had collaborated with an English engineer, T. V. Allis, in some experiments in fast rolling and also in trying to reroll hot rolled pickled steel by reheating to a red-hot temperature close to the mill. This proved a failure. When he returned to England, we bought from him a small mill the Farrell Foundry and Machine Company had made for his experiments. About that time I tried to find some method for cold rolling very thin cold rolled steel. Tin plate for cans was made from small sheetbars and was produced by a very laborious process. We tried rolling strips by passing several in coils superimposed one on another, but failed. Many things that were of prime importance we did accomplish. We succeeded in pickling large and heavy coils of steel continuously. I had heard the Wilmot and Hobbs Company were passing cold steel continuously through one of their hot mills by carrying the steel by hand from one set of rolls to another in the train (not tandem). In the bar and wire mills tandem rolling was common and experiments were being made by others in cold rolling in tandem mills by driving with direct current motors, each controlled by a separate mechanism. The whole problem in continuous tandem cold rolling was to make the different sets of rolls run at the right speed to take up the ever increasing length. This could be done by the separate control, referred to above, but required much labor, expensive equipment, and direct current motors, unsatisfactory and to be avoided when possible. I conceived the idea of using the electrical slip created by overloading alternating current motors so arranged that the one in front was always pulling from the next back. This not only obviated the necessity of mechanism for changing speeds, but allowed two men to run a (small eight-inch) tandem set of six or seven stands.

Having succeeded in this rapid cold rolling of coils of steel, I next undertook the problem of annealing automatically with-

out discoloring. William S. Rowland applied himself to the problem, and after two or three years of experimenting we constructed a successful furnace. In later years others in our employ were able, with the low-cost electric power from our hydroelectric plant, to devise a most economical and practical stationary method of annealing. We constructed a four high mill, having the top and bottom supporting rolls much larger than the two middle ones which did the work. This was a failure because we thought we would never be able to keep the rolls in alignment, and because we did not know enough to pull the metal as it passed through the coils. Many of the great continuous cold rolling mills now being used for rolling automobile body steel are so constructed.

I do not believe many of the stockholders appreciate the importance of the steel end of the business and how large a part of the profits in recent years have come from it directly and *indirectly*. Articles have been written about the results and profits due to very *early* experiments in cold rolling iron. These experiments were conducted in the early 'seventies. Seventeen years later absolutely nothing had been done toward developing a cold rolled steel business either in manufacture or sales, except the work which Howard Hart did and which, on his resignation, was abandoned.

The Company had from time to time, as an accommodation, sold to the Scovill Company of Waterbury and the Russell and Erwin Manufacturing Company a little planished steel in straight lengths for simple work, but the amount was negligible. Since The Stanley Works' first experiments in cold rolling in 1870, six or more good manufacturers of cold rolled steel had developed substantial business in the product, but The Stanley Works in 1892 had made no provision either in plant or organization to establish a cold rolled steel *business*. Other companies had solved some of the difficulties of annealing in coils and straight lengths without scale, in flattening, in rolling in coils in very thin thicknesses, and in treating for deep drawing and intricate forming operations, but The Stanley Works in 1892 had done none of these things, but was doing just what it had done in the 'seventies

—planishing straight strips of iron and steel to be used in its own works. During all the years of building up this business, no other officer of The Stanley Works, except those under and responsible to me, knew much about or had anything to do with the conduct of the steel branch of the business, either in its production or sale. If someone had not developed the steel business in the 'nineties or previously, the Company would probably not have gone into it later, for the competition soon became very severe. It is the foundation on which the Box Strapping business, Stanley Steel Company of Canada, the Hydroelectric Plant at Rainbow, are built. It is doubtful if these activities would have been developed without it. The erection of the Hydroelectric Plant at Rainbow would not have been practical without the consumption of power for rolling steel and annealing it. At times it has been quite profitable, has required little capital, and also has been of great aid in developing the hardware business. During World War I this steel business was of inestimable value to the war effort of this country.<sup>2</sup>

2. The same is true of World War II.



## CHAPTER VIII

### INVENTIONS AND PROGRESS

**I**T WOULD BE tedious for the reader if the multiplicity of improvements made were recorded. However, before getting to the end of this record of my connection with The Stanley Works, I will set down a few of the improvements I was particularly interested in. Very likely anyone in my position would have conceived and carried some of these to consummation. Those who have followed me in the business have made great progress in mechanical improvement, and by budgets and other systems have been able to guide the business most intelligently. That is what was and is expected of those of authority in industry.

The paper boxes used to pack the hardware, it seemed to me when figuring costs, were very high, so I looked into the matter and in 1894 was authorized to buy all the machines necessary for the production of our paper boxes. Mr. Hart was so afraid our source of supply might be cut off if it were known that we intended to make our own boxes that I erected the plant in Massachusetts and ran it there for some time before transferring it to New Britain. Another reason for setting the machinery up in Massachusetts was the fact that I had arranged with a paper box machine manufacturer named Robinson to remodel a standard automatic envelope machine to make our smaller boxes, an innovation that might not prove successful. This installation of machinery to reduce costs was the first of my many such moves and was in operation about four years after I entered The Stanley Works' employ.<sup>1</sup>

It had always been difficult to get new machines made in our own factory. In 1898 I persuaded Mr. Hart to let me establish a department for that purpose. In order not to have all our men famil-

1. A note given to George P. Hart says, "in 1904 we made 5,425,658 boxes at a saving of \$18,718.42."

iar with contemplated improvements, we rented the top floor of an old building on Elm Street, now owned by Landers, Frary and Clark. Here we made many improved machines under the management of Clayton S. Stevens.

I had sketched the plan for an automatic butt machine for our lighter goods and had Stevens hire a skilled draughtsman who was assigned to work out the details. After three years' work and after we had spent several thousand dollars in design and construction, the machine would not work successfully and I was advised to drop it—one of our officers and directors volunteering that “fools rush in, etc.” I, however, stuck to it, built a second machine, conforming more closely to my original plan, and had the satisfaction of seeing many of the machines made. These, because they required little labor and were of expensive construction, were, like the tip and pin machines,<sup>2</sup> run day and night. I still have the little sketch I originally made in anticipation of these machines.

Patents were never taken out on many of our inventions because they would allow competitors, or would-be competitors, to study the state of the art and avoid the patents if possible. We hoped, if they were kept secret, to enjoy the benefit of our ingenuity for a longer period if *not* patented. So we usually patented the articles we made, but not the processes or machines. Those butt hinge machines are still being operated and now, after more than two decades, are superior to anything of the kind in the world. They have been very profitable to The Stanley Works and enabled it to reach foreign markets it never could have without them.

This separate machine design and construction department proved of great value in eliminating delay and in concentrating us on our determination to improve processes and goods and reduce costs. It was enlarged and so successful in accomplishment that in 1906 we built a machine construction building on Cleveland Street where it was isolated from the rest of our buildings.

The Company had been accustomed for many years to make

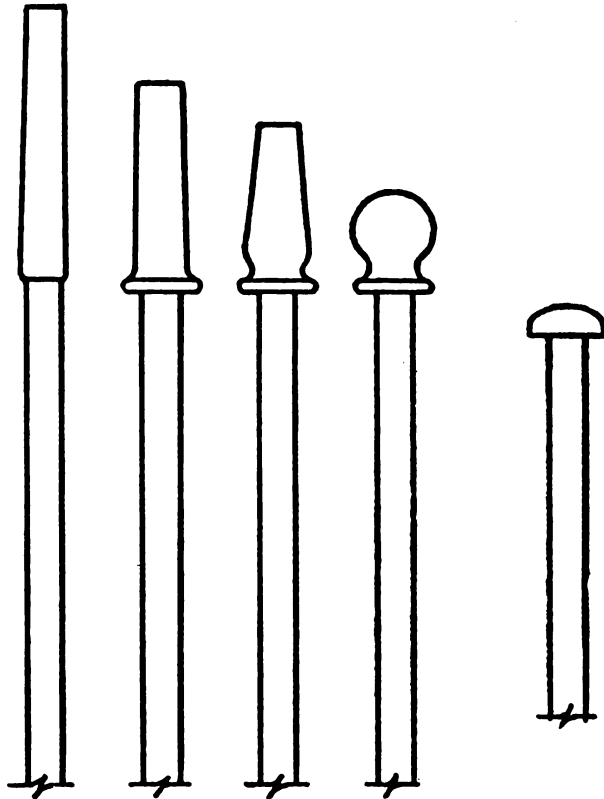
2. Referred to on page 47 in this chapter.

special orders for hinges and butts for firms which could not use the standard articles. Such special goods were made in the regular butt or hinge departments and often required stoppage of the product flowing through the room. The whole amount received for such orders was often insufficient to pay the cost of the interruption in the manufacture of the regular goods. Early in the 'nineties I persuaded the officers to let me organize a separate department for such orders. This resulted in filling orders much more promptly. The department stood on its own financially and took on other production besides butts and hinges. In World War I it was of great value to the country in manufacturing gas mask parts and munitions and has grown into a business of about a million dollars yearly.

When I became Superintendent the Company was buying the oval head pins used in cheap lines of loose pin butts at what seemed to me very high prices compared to other similar steel products. Ball tips and pins for door butts were being made by various expensive methods: malleable iron castings, hot-forged wrought steel, and the better grades on a few hand and automatic screw machines. I had been told by those responsible for the purchase of supplies that the iron used in making the oval head butt pins which we purchased for use in our cheaper goods could only be made from an expensive wire, the steel for which was made in Norway. One day I noticed, lying on the floor near a drop hammer, a piece of ordinary American-made wire that someone had put under the machine and dropped the hammer on—very likely as a matter of curiosity. It seemed to me that the distortion of the metal without fracture was no greater than in forming an oval head. I, therefore, adapted some fixtures to presses and one by one headed up the American steel wire into oval head pins, finished them in hand shaving machines at a total cost considerably less than purchased pins. We then bought automatic heading and shaving machinery and made the product for little over half our former cost.

That accomplished, I next tried to see if it were possible to cold forge or head the ball tip pin complete with its base. With the

same fixture and press previously used for the simple oval head pin, I found I could gather enough of the material after making a flange on the wire to finally form a round head. The operations were as follows for a ball tip:



**OPERATIONS TO FORM  
A BALL TIP PIN.**

**AN OVAL HEAD PIN**

Having demonstrated the feasibility of making these ball tips and pins by what was really a cold swaging process we tried to get machinery makers to construct an automatic machine to complete the ball tip on the end of a coil of wire and then cut it off. No one would undertake to build such a machine. All heading machines up to that time had been able to make only one part of an article larger than the wire itself. They could make a ball

or the base, automatically on the end of a wire, *but not both*. The people who knew most about cold swaging or heading machines were the Farrell Foundry and Machine Company of Waterbury. They would take no responsibility in the design or construction of a machine, but would put their draughting rooms and shops at our disposal and risk provided they were compensated for their expenses plus a reasonable profit. In 1898 I assigned Franklin Holland, who had been carrying along my previous experiments, to be my connecting link with the work. The first machine was successful beyond our expectations and was followed by the construction of enough duplicates to take care of our entire product. Our business was increasing and soon the entire battery was in noisy operation day and night, continuing for years, as the neighbors could well testify. These machines were one of the most profitable investments The Stanley Works ever made. At that time I figured they were saving over fifty thousand dollars yearly over any other method available. I had had the machines built very heavy and rugged to be sure to avoid any variation in the size of the pin. Two patents for these machines were issued. Our competitors, in order not to infringe the patent, were obliged to use two machines. They dropped the piece from one machine, then picked it up and in another machine completed the work. Our patents protected us in completing the butt pin automatically before dropping it from the machine.

About 1900 I delegated to Franklin Holland the job of trying to carry pieces of hardware through a tank of japan and on through a kiln to bake the coat on. At the time all japanning or enameling was done by hand dipping and either carrying into the kiln by hand or by putting on a carriage which was moved into the kiln and then out when baked. We were prevented from patenting the continuous process, if we had so desired, by reference to a patent for dipping shingles in a stain and drying. We did take out some patents, I believe, on stopping the device for the operator's convenience. Later we began to use a similar system in plating butts and it was developed by the Fleischers, father and sons. That process was for years in advance of any-

thing in the country. We put in the patent office claims on our improvements in plating, expecting never to let them issue, but to be cited in interference if anyone else tried to patent them. However, our patent lawyer slipped and rather incomplete patents on the plating machine were issued in 1905. This continuous system which I originally thought of and put in operation before anything of the kind was used in enameling or plating plants in the country, is now the customary method of coating such goods.

There is an interesting story connected with the design of the machines used to operate the chains that carry the goods along. In these processes we desired to start and stop the carrier with its load of thousands of pounds of goods very frequently and quickly for putting on and taking off the pieces being coated. Our draughtsman came to us with a device which started the chain with its load slowly, accelerated gradually, and then slowed down and stopped with no jar or shock. We thought he had invented a new mechanical movement, but on looking it up we found it was the well-known Geneva watch movement, although the designer had never seen or known it. We used this on many machines later where the parts to be moved were heavy and required to be started and stopped quickly.

As our door butt business increased, the wrapping of the screws in tissue paper, so that they could be placed in the box with the butts without injuring the latter, became quite a problem. Long rows of girls in high-backed chairs sat before benches and all day long manipulated the pieces of paper and screws with unbelievable rapidity. I first tried to get some of the companies making wrapping machines to construct machines for doing this work. They would not undertake it. I then put our machine design department on the job. After working on it a long time they acknowledged they were unable to do it. They could pick up the screws needed for a butt and place them in the proper positions, two pointing one way and one or two the opposite way, but were unable to feed the thin tissue paper out horizontally and cut it off from a roll and get the screws properly placed on it.

I studied the matter and finally submitted a unique plan which proved successful. Instead of trying to pull the paper forward with a separate mechanism, get it out of the way, place the screws on the paper and try to hold them in place while cutting off and folding the paper, my plan placed an electromagnet beneath the paper at the point where the screws were assembled in the form required. The magnet, acting through the paper, held the screws in place, and their pressure on the paper was strong enough to pull the paper along while the other operations of cutting off, folding and gluing the package were all performed at the same time the screws were being assembled. This plan of having several operations all done at the same time made a very rapid operation possible as well as overcoming the difficulty of feeding a fragile strip of paper forward.

In making improvements in the organization it was best to have salaries liberal enough to include assignment of all inventions that would improve either the goods or the means to produce them. We could, therefore, without jealousy, talk and plan betterments without conflicting personal interests. If any other person worked out my suggestions, I always had him join in making application for the patent. For that reason some of the things which might be claimed as my sole inventions may not from the patent office records so appear. For instance, I have already told in this chapter how, in making ball tip butt pins, I had formed complete pins as finally made, with the same number of separate operations, before I decided to try to have a machine constructed to do all the operations before dropping the piece. The patents for that machine were taken out under the names of E. A. Moore and Franklin Holland.

On some of these pages have been spread details of minor accomplishments as a matter of record. Many of them, if taken separately, are of no great importance in the growth of the Company.

To anyone who has observed the evolution of mechanical oper-

ations in industry during my life's span, it is apparent that even such a simple improvement as the one in a heading operation enlarges the conception for its utilization in other fields. Without making any search, but relying wholly on my memory, the following betterments in manufacturing method resulted from my experiments in making the butt pin with its shoulder and ball: soon all wire hasp catches, which formerly had a milled shoulder, were made automatically, out of smaller wire with a headed shoulder. The New York City blind hinge pins next had a headed shoulder for the pin. Thumb latches were cold forged, made possible by heading operations. The Fafnir Bearing Company were making large sizes of rings by cutting them off the end of expensive tubes. I suggested to Elisha H. Cooper, their President, that they use the much cheaper bar steel, upset hot a ring on its end, and cut it off with practically no waste. So it was with every improvement in our factory; and thus it has been in the evolution of whole, complicated modern machines. This is especially apparent in transportation: the coasting bicycle, the chainless high wheel, and then the safety one, the motor-driven vehicle, and then the airplane, and belated improvement in railway equipment, all conceptions stemming from very modest efforts in the beginning to lighten the task of foot travel.



## CHAPTER IX

### SULPHATE OF IRON RECLAMATION

**S**OON AFTER I began my work at The Stanley Works and became familiar with different expenditures and wastes, the large amount of money spent in removing the oxide made in rolling steel, impressed me. The cost of acid and steam used to facilitate the chemical action in removing the "scale" as the oxide was called, the waste of steel necessitated by the process, to say nothing of the unusually large upkeep and expense, all seemed to me an extravagant way to remove the oxide. The steel was lifted and lowered and moved about by hand hoists. I tried all sorts of experiments in trying to rid the rolled steel of its scale mechanically, and did partly succeed by bending the steel sharply in rolls. I also soon designed a hoisting arrangement actuated and controlled by air cylinders which eliminated much of the labor as well as some waste, because it never tired and left the steel in the acid too long. Later as mentioned in another page, I successfully pickled the long coils continuously. There was still, however, the waste of the iron itself that was flowing into the city sewage system. Sulphuric acid was used and the waste was sulphate of iron in solution often carrying an excess of acid. On investigation I found that a company on Long Island, making enameled ware, had made some progress in reclaiming the oxide in the way I had in mind to try. They gave it up as impracticable, and, as the trial had been quite expensive, I abandoned the plan at the time. Later our city found that this oxide was injuring its sewage beds in Berlin, and, as our chemist, William S. Rowland, had plenty of time to try anything, I asked him to see what could be done toward saving the sulphate of iron and eliminating the wastes harmful to the sewage beds. He succeeded in the task. First he neutralized all the waste solution, exhausting the acid by putting inexpensive scrap steel in it. He then eliminated the

water and dried the remaining sulphate of iron in evaporators much as sugar is dried. This product is used as a base for some paints and is in demand for other uses. We found afterward the United States Steel Company had been making similar experiments at the same time and had taken out some patents which they said we were infringing, but which we thought we were the first to invent. However, as we wanted to avoid an expensive lawsuit and they wanted to use a patented scrap bundling machine which I personally owned, we traded the use of their patents for their use of mine.<sup>1</sup> This process not only eliminated the trouble at the sewage beds as far as The Stanley Works was concerned, but has shown profits for many years. After we obtained the rights under the American Steel and Wire Company patents, we continued, however, to use the process and machinery we had invented and developed before we knew they were working on the same problem.

1. The condition of the exchange of the use of these patent rights is given in Chapter XII, Marwick's Scrap Bundling Machine.





THE 1906 OFFICE BUILDING

## CHAPTER X

### FIRST OFFICE BUILDING

**I**N 1906 the business was growing and we were using more and more of the No. 4 building for office space. The Directors voted \$50,000 for an office building. William H. Hart with his accustomed foresight had purchased three homes for the Company on Lake Street at the north end of Grove Hill. It was decided to move one of the buildings (the Goodrich house located directly at the end of the street) and build the new office to connect with the factory buildings by two bridges over the railroad tracks. Mr. Hart negotiated with the officers of the New York, New Haven and Hartford Railroad and persuaded them that, since the law required the railroad to eliminate a certain number of grade crossings yearly, it could well afford to build one or both of the bridges if we gave up our old right of way across their tracks, leading from the plant on Myrtle Street to Grove Hill.

I was made responsible for the plan and construction of the office building. An architect was employed to draw plans which we worked over for several months. On getting bids, the lowest was over \$80,000. I had explained to the architect that I would not go back to the Directors for more money and that the cost must be kept within the appropriation of \$50,000. After some delay the plan was revised and when the bids came in the lowest was over \$60,000 and the architect seemed to think it was impossible to build a creditable building the size we needed within the appropriation. We had begun working on the plans in March and the time was now August. I had heard of an excellent firm of architects in Boston who had planned many hospitals throughout the country and built them within the appropriations. Bertram Taylor of the firm of Kendall, Taylor and Stevens came down on my invitation to Hartford. After talking things over we took a private room in the Hartford Club about three in the afternoon and when we finished at about 2 A.M. the next

morning, the preliminary plans for the main office building, as it now stands, were complete and had nothing in common with the plans made by the other architect. Very shortly the specifications and drawings were submitted to contractors and resulted in a low bid of \$44,000 by one of the best builders in the state—the H. Wales Lines Company of Meriden. The contract was signed October 16, 1906, and we moved into the building with its new furniture (flat top mahogany desks instead of the old roll tops) and general overhead lighting system, designed by the General Electric Company, on October 1, 1907, considering ourselves very up to date in our new quarters. The façade of the office building is in Italian Renaissance period and the arrangement of the interior was inspired by the Bank of France in Paris, although very simple in comparison. I had observed how much time was lost and how many untimely interruptions were perpetrated by having visitors on business ushered into the offices of the various men whom they needed to see. Much time was lost in private offices telling stories, gossiping, etc. I had, therefore, determined that, in any plan, there should be no private offices except for a few officers, but many consultation rooms where visitors could be conducted to await the arrival of the person to be interviewed. This plan not only permitted The Stanley Works' man to drop his work at a convenient time, but allowed him to withdraw when he wished without waiting for his visitor to terminate the interview or for the salesman to get his traps and samples together before he departed. The French plan of office was admirably adapted to this plan of procedure.<sup>1</sup> Any disappointment a visitor might have had in not being able to circulate his latest story or chat until the next train was forgotten owing to the kindly, courteous Frederick Benham, who for years received all visitors, cared for their needs and comfort, and helped them on their way, blessing The Stanley Works.

1. Now in 1939 the office and its addition have become too small for the business and a new connecting building with many improvements in construction is being built to cost more than double the original building. This was designed by my son, Maxwell, and his partner, Charles Salisbury.

## CHAPTER XI

### THE CHEMICAL COMPANY

**I**N 1908 I was making experiments in annealing bright steel without oxidizing its surface. A surrounding envelope of city gas under slight pressure was used to exclude the oxygen in the air. As the results had been variable we purified some municipal gas and found the results much better. I decided in 1909 to employ an expert chemist to perfect our production and interviewed A. D. Little, an eminent chemical engineer of Boston. He recommended a very young-looking man, William S. Rowland, for the job. When the chemist had finished his work successfully, I arranged with Mr. Little to let me add Rowland to our staff. He soon worked himself out of a job, as a company of our size did not seem to have chemical problems enough to keep him occupied.

Mr. Rowland had been observing the processes in some of the brass foundries and mills in Connecticut and told me he thought he could profitably reclaim waste metals that were being shipped long distances at considerable cost for reclamation. This was owing to the dirt and ashes they were mixed with. I agreed to personally finance a partnership, he to work halftime for The Stanley Works and half for the new project. Later we incorporated the enterprise under the General Statutes of the State under the modest name of the Connecticut Metal and Chemical Company with authorized capital of \$50,000, of which \$2,500 was paid in. The incorporators were, besides myself, W. S. Rowland and J. E. Cooper, who prepared the incorporation papers. The papers were signed September 9, 1911, and approved the following day. I advanced the money for Mr. Rowland's subscription. A little later the paid-in capital was doubled, making it \$5,000, and in May, 1915, was increased by \$13,000 to \$18,000, the new subscriptions being as follows: E. A. Moore, \$5,200; W. S. Row-

land, \$6,500; and Miss Katharine Minor, \$1,300. Miss Minor was my secretary and stenographer, and I presume Mr. Cooper did not care to put more money than his original \$500 into the venture, so that Mr. Rowland and I each committed ourselves for \$6,500. I know Miss Minor put no money into the enterprise.

At first we rented a small factory with a little water power and plenty of water near Bristol, and after several months' work had learned much about the reclamation of metal wastes in Connecticut, lost some money, but saw our way clear to prosecute the business successfully.

After we had worked on the enterprise some four years, I told the Directors of The Stanley Works that I was spending a little time each week with the new project. They rightly said that my salary was for all my business effort, but to enable me to keep Mr. Rowland, suggested that the then book value of the corporation be determined and my interest be taken over by The Stanley Works. This was done, resulting in a loss of a few thousand dollars to me. It was, however, the proper step to take, for eventually it would have taken more of my time than was proper for me to spend while under salary arrangement with The Stanley Works. Neither could I have, at certain periods, reasonably financed the new business. In 1921 the name was changed to the Stanley Chemical Company. This is the record of the beginning of the Stanley Chemical Company, whose sales and profits in recent years have exceeded those of The Stanley Works when I was first employed by it.

I am quite sure that this business would never have been started in the ordinary course of The Stanley Works' operation, and that on more than one occasion it would have been abandoned by our officers had I not insisted or persuaded my associates to continue it, for its future looked dubious at times. I have ever been grateful to them for acceding to my wishes, for several reasons. Mr. Rowland was a man of fine intellect, great technical skill, and excellent administrative ability. No man I ever worked with had a more logical and better trained and disciplined mind. I should have hated to witness the result on his fine nature if he should



fail after so many years of most intelligent work. I should have disliked no less to make a personal failure.

Mr. Rowland's early and sudden death came as a great and painful shock to me. During the dark days in the development of the Chemical Company, when some of The Stanley Works' officers would have abandoned the business, the discussions became quite heated. After such a meeting I wrote Mr. Rowland a letter of regret for some words I had used and had his loyal and generous reply, as follows:

July 29, 1926

Dear Mr. Moore:

Thanks very much for your letter of the 23rd. My answer to what you say about caustic words is, that if my past business life were to be repeated, I would ask for nothing more than the same thing all over again, with the same associations. Anyone who could not see that whatever you said had but one object—and that—the best interest of the Stanley Works and the upbuilding of its personnel—is blind.

Very sincerely,

W. S. Rowland

Both New Britain and Bridgeport are near enough New York to enjoy the advantage of its port as a distributing point throughout the world. In addition to railroad and truck facilities that can take goods direct to ships loading for wherever they go, the Bridgeport plant, only fifty miles from New York, also has a water connection. Through it all I saw that some time in the future chemical engineering and manufacturing in Connecticut might be as profitable and as good a business as making steel and hardware for houses.

## CHAPTER XII

### MARWICK'S SCRAP BUNDLING MACHINE

**A**FTER Hart and Cooley of Chicago sold their cold rolled steel business to the bicycle companies, the manager of the plant was a Scotchman named David B. Marwick. He was of an inventive turn of mind. In fact he invented the wrought steel register, the foundation of the Hart and Cooley Company business. The steel plant was soon moved from Chicago to Elyria, Ohio, and the name changed to Columbia Steel Company. When going through Elyria, I stopped over to see Dave and look over his new plant. Many of the orders for cold rolled strip steel called for sheared edges. This shearing resulted in a large amount of unwieldy scrap which looked like wire and was very hard to handle as much of it was springy and had dangerous sharp edges. Some of it was so thin that it would draw in between the knives if cutting in short lengths were attempted. After viewing the mill we went out to look over the outside property. A great amount of the scrap shearings was piled high back of the mill building and I asked Dave what he was going to do with it. He showed me a machine, much of it made of wood, in which he had arranged a mandrel surrounded by a yoke of oak wood. A strand of scrap was inserted in the stationary mandrel. After starting, the revolving mandrel drew in other tangled scrap. This, pressing against the yoke, was drawn in and compressed into a round bundle the shape of the yoke. Seeing the utility of the invention, I asked Dave why he had allowed the thing to be given up. He said the owners of his company took no stock in it and had refused to allow him to build a real machine. As the experimental one had broken he had given up trying to do anything about it. I told him that if he were under no obligation to others I would have drawings, patterns and one good, strong, metal machine made. If possible, I would also patent it in his name and see what

could be done with it, if he would give me a half interest in it. He was glad to do so. The invention is now used throughout the country wherever light stringy scrap is made. I sold the rights for brass mills to the Coe Brass Company of Torrington, now part of the Anaconda Company; made many machines, some of which went as far away as Australia; traded the rights to use the patents to the United States Steel Company in return for The Stanley Works' use of their copperas recovery rights; and gave The Stanley Works the rights to use my patterns, and to make and use all their machines without royalty or payment of any kind.

A company in Worcester began infringing the patent rights and as Marwick did not want to participate in defending the patent, I bought out his interest and went on alone, carrying the case to the Federal Court of Appeals in Boston. For arguing the case before that court, I engaged my old friend, John P. Bartlett, then of New York, but formerly of New Britain. The Court consisted of three judges, but I can remember only two: a young man who understood the case and an old man, hard of hearing, who did not—and Bartlett did not succeed in getting him to. The old judge said cotton thread had been wound on a spool for years. The broad claim we wanted was the combination of a mandrel and a surrounding yoke which consolidated the scrap material as it was wound. We were given claims which protected the use of the machine to a large extent, but were not given the broad claim we wanted.

The original patent was issued April 23, 1907. Later I took out patents on improvements on the machine which prolonged the protection.

The Stanley Works made bundling machines for its own use at its Bridgewater plant, where with its foundry and machine shop, it could do so to advantage. Some time before 1920, Mr. Fitch, the Manager, suggested they make all of my machines there, which was done on the basis of a reasonable profit to the plant. In 1920 with the added responsibility of the purchase of the Stanley Rule and Level business, it seemed wise for me not

to spend even the time required for filling the few orders that came for machines without solicitation. I, therefore, gave The Stanley Works all patent rights, drawings, patterns, and goodwill, with the understanding on their part to pay me a royalty of 5% on sales. Mr. Fuller, who was put in charge of the business, reported in 1926, profits to The Stanley Works on its sales to date: \$18,560 above all costs and expenses, including my royalties of \$1,083. Before 1920 I had sold rights, under the patents, to a few companies to use and manufacture machines for their own *limited use* for some twenty to thirty thousand dollars.

We had received \$7,500 for the rights sold the Coe Brass Company. The rights for the United States Steel Company were more valuable, for its use would be in many more plants for a much larger tonnage. The steel company had threatened suit to stop The Stanley Works in the use of its copperas recovery plants. Before I knew that The Stanley Works was infringing U. S. Steel's copperas patents, I had agreed with the United States Steel Company to sell them the bundling machine rights for \$7,500. Being at the time the sole owner of the Marwick patent, I tried to have each of the two matters settled on its own basis. Finding this impossible, with the approval of the Directors, I conveyed a limited use of my patent rights in the scrap bundling machine to the United States Steel Company without compensation from them and they conveyed a like use of their patent rights in copperas recovery to The Stanley Works. A committee was appointed by the Directors to determine "what amount if any" should be paid me. The committee made a formal report recommending that the Company pay me \$2,000.

## CHAPTER XIII

### THE NILES PLANT

**I**T IS DOUBTFUL if the Niles Plant would have been built without my earnest desire to do it. A western plant had been under consideration for many years. We had negotiated with different competitors located in the West, and had seriously considered building in East Chicago, for in the 'nineties we had been losing money on the heavier lines of hardware. During those hard times, rolled steel sold at times in Pittsburgh for less than a cent a pound. The freight to Connecticut in carload lots was seventeen cents a hundred. Some of the product made from the steel was returned by us to the Middle West. The return freight rate to western points on the higher class manufactured product was greater than on the steel coming east. On heavy goods where the labor was negligible and the material the greater item, we were fearfully handicapped against competitors located where a cartage charge delivered the raw material into their plants. I had a prospectus (no doubt it would now be called a research) prepared, placing, in imagination, a plant at some five most promising locations, figuring the freights into the plant on the raw material and on the outgoing finished product. This showed that the vicinity of Youngstown, Ohio, was the logical location for a plant. We were not sure that the cost of labor would be as low among the steel mills as at New Britain. We, therefore, found a small vacant plant at Girard, Ohio, where freight rates were the same as at Youngstown and manufactured washers there for a year or two. The experience gained warranted building a plant for our heavy hinges as well as washers.

During the time we were at Girard I had been studying a plant to manufacture hinges by a continuous process, with carriers from machine to machine mechanically delivering the manufactured product to the cleaning and packing department. Finally

the barrels of finished hinges let gravity carry them to the great store house where an eighty-foot crane either piled them five barrels high or delivered them to one of the railroads. Such a plant, which was fundamentally a great machine, would be no novelty now, but in 1910 it was far in advance of the times. In fact so far as I now know it is still the best heavy hinge plant in existence and running practically as designed.

A word about continuous processes may not be out of order. Much has been written about Henry Ford as the originator of continuous processes, where the material moves to the man and goes forward continually until it becomes the finished product. I visited the Ford plant in Detroit in 1912 when, from what was talked and written, one would suppose the plant was a great machine as our Niles Plant was. My surprise was great to find nothing of the kind. *Parts* were so manufactured but not in buildings especially designed to carry the product forward continually in one direction. Nor were the different buildings for the various parts located so as to have the finished part delivered at the most economical point for assembly. Long before that the Standard Steel Company was making steel cars where the whole plant was practically one machine; the main building being flanked by wings in which the various parts, such as trucks, were manufactured and delivered at the proper location. In Thompsonville, Connecticut, the Bigelow Carpet Company had built a long three-story building in which the wool entered one end, was carried through continuous processes to the other end, elevated a story and back the entire length of the building, then up and forward, having traversed three floors and perhaps half a mile, before becoming a carpet. Long before the Ford plant was built, the packers of Chicago had arranged the slaughter and dressing of animals, especially sheep and hogs, so that the raw material, that is, the animal, passed before the operator who performed his special act as the carcass went by. Long before Ford built his plants, the Morgan Construction Company of Worcester, Massachusetts, had built mills where the material flowed or moved from operation to operation and where the few operators remained in one

place. Continuous rolling of rails for the railroads was also common. I do not think Mr. Ford was a pioneer in planning one great machine to finish a product, nor do I think in his early construction he did as much as was already done. To be sure, the Niles Plant product was simple compared to an automobile, but the plant was and is one very complete machine.

The land for the Niles Plant was bought in September 1909. It consists of some thirty acres near the Mahoning River with its water rights and is served by the Pennsylvania, Baltimore and Ohio, and Erie Railroads. The steel buildings were erected by the McClintosh Marshall Company on a contract I entered into with Mr. Marshall in October, 1909, and the plant was in operation the following year.

## CHAPTER XIV

### THE RAINBOW HYDROELECTRIC PLANT

**A**FTER LONG distance electrical transmission of power over wires with little loss had been proved practical in the 'nineties, William H. Hart was anxious to have the benefit of hydroelectric power for The Stanley Works. Some of my earliest remembrances of trips with him were to properties that could be so developed. I became enthused with the idea and was glad to be asked to accompany him on his many trips of investigation. The Falls Village power, which earlier had been partially developed on the Holyoke plan and then abandoned, was considered, but given up, partly because of the difficulty of getting a good title, and partly because the water storage above the Falls was meager. Mr. Hart was unfortunate enough to employ an engineer of Boston who had assisted the City of New Britain in increasing its supply of water. The engineer's experience had been largely in municipal projects and was of doubtful value in advising as to hydroelectric power development. Upon his advice Mr. Hart bought or optioned a site on the Farmington River near Avon and had a bill introduced in the Connecticut State Legislature permitting the flowage of much of the Farmington Valley, including the lowlands now belonging to the Farmington Country Club and the beautiful farm lands on the opposite side of the river. Fortunately this bill failed to receive the approval of the Governor, although passed by the Legislature. The low head and high cost of flowage and development would have resulted in an uneconomical investment.

Near the close of the century The Stanley Works bought the Bridgewater Iron Works in Massachusetts. The Taunton River, which ran through the Works, had formerly been utilized to some extent and was still turning some wheels. When I proposed to install a hydroelectric plant there for auxiliary work, Mr. Hart



suggested that the same engineer make plans, recommendations, and estimates of the cost. He did this, and proposed a new expensive concrete dam and the excavation for a long tailrace to enable him to place the power house at the dam. His estimated cost was over \$100,000. A little figuring showed me that with such an investment, steam would be cheaper for the small amount of power available. Mr. Fitch, then manager at Bridgewater, was an excellent engineer and a Yankee who would make money anywhere. He went to Holyoke, where they were accustomed to low head developments, and employed a practical man to see what could be done *profitably*. We utilized the old canal, strengthened and rebuilt the old dam, in use since 1808, and completed the work for \$14,000. The installation was successful and was run day and night whenever water was available. Instruments installed in the distant mill engine room made an attendant in the hydroelectric room unnecessary. This saving of permanent capital investment was fortunate, as we abandoned the plant when, some years later, we bought The American Tube and Stamping Company Plant at Bridgeport and almost gave the Bridgewater Plant away.

When a boy, I had spent many days visiting at the home of my great-uncle Frederick Pickett in Tariffville, and I remembered there was a considerable fall in the river below that village. I again visited the region and found a location for a dam which seemed to have about a thirty-foot fall, but a limited storage for water. A search in the town records revealed that the land required for a dam site was owned by D. Newton Barney, a director of the Hartford Electric Light Company. Later that company developed this site.

After construction of the Gaylordsville hydroelectric plant on the Housatonic River, Robert N. King, its chief engineer and promoter, formerly President of the Stilwell-Bierce & Smith-Vaile Company of Ohio, came to The Stanley Works and suggested the development of a plant at Kent, where there was an abandoned furnace and water privilege owned by several parties in undivided interests. We found it would be possible at Kent

Furnace<sup>1</sup> to get a fifty-foot fall on the Housatonic River, and therefore, without knowing much of its value, purchased a farm (the Slosson place), running across the land required to be flowed, and also purchased part of the undivided interests in the Furnace property. We found that Winthrop G. Bushnell of New Haven, a promoter, had started to obtain control of the power there by buying an undivided interest in the Furnace property. However, our purchase made his control impossible, so he sold out to us. During the following years, through various agencies, we purchased some fifteen different farms and pieces of land that would be flowed, the total amounting to some two thousand acres. These farms began at the south, below the Kent Furnace site where the flowage of the Gaylordsville plant (now owned by the Connecticut Light & Power Company) ends, and extended to Swift's Bridge, some four or five miles north. After buying almost all the property required for flowage, we had requisite surveys made and borings for a dam site and a general plan of development studied, as well as a line surveyed for a change in location of the railroad. My friend Albert L. Scott, later President of Lockwood, Greene & Company, engineers of Boston and New York, walked with me from Falls Village to Kent Furnace, about twenty-eight miles, to allow me to become familiar with the Housatonic River above our holdings.

We fully expected to develop this Kent power when conditions were favorable. However, an unexpected opportunity for obtaining water power came to my notice. Edward Clinton Terry, a hydraulic and mechanical engineer of Hartford, believing that electricity could be transmitted long distances without great loss, had, in June 1889, bought with his own funds a dam site and flowage rights on the Farmington River for the sole purpose of generating electric power and transmitting it to Hartford. In that year

1. This furnace, built about 1825, originally produced a fine grade of pig iron. The ore was dug out of local hills, the charcoal came from the hillside woods, and the lime was found a little farther north. The power for the air blast came from the river. With the construction of railroads and large furnaces in the West, this furnace was closed in 1860, never to be operated again.

he personally signed a proposed contract with the Hartford Electric Light Company to deliver electric power to Hartford, 10.8 miles distant, and agreed to assume the loss in transmission.<sup>2</sup>

On April 15, 1890, Articles of Incorporation of the Farmington River Power Company were adopted, appended to which was a list of stockholders; and in June of that year, the first meeting of the company was held. On June 9, Terry sold the land and rights, which he had bought for flowage the previous year, to this Farmington River Power Company. In the meantime, that company had built an eighteen-foot wooden dam across the Farmington River at a place called Oil City.<sup>3</sup> In December of that year, the Farmington River Power Company began delivery of direct current power at 500 volts on their contract with the Hartford Electric Light Company. On March 7, 1891, the company entered into an agreement with the Hartford Electric Light Company to furnish the latter with "600 HP of electricity for five years." This was direct current for arc lights for street lighting. One full arc light was to be considered one HP. To fulfill this contract the Farmington River Power Company bought and installed ten or twelve belt-driven Schuyler dynamos generating 500-volt direct current electricity. When in operation the current was delivered to a switchboard and from there at the same voltage over a transmission line 10.8 miles to Hartford with a loss of about 10%. The line consisted of sixteen #0 copper wires.<sup>4</sup>

In October 1893,<sup>5</sup> two KVA alternating generators were installed, together with transformers, and also a motor which was probably installed at the Hartford station. This machinery and apparatus was purchased from the Thomson Houston Motor

2. Meeting of the Directors of the Hartford Electric Light Company July 17, 1889.

3. This dam was exactly  $1\frac{5}{8}$  miles above the present concrete dam, later built by The Stanley Works at Rainbow.

4. Three of these wires are still in use, and now a three-phase 60-cycle current at 66,000 volts carries a load of 10,000 KW over twenty-two miles to New Britain, with very little loss.

5. In 1891 the Minutes of the Farmington River Power Company show that the Directors authorized the purchase of a 1300 HP alternating current generator. Mr. Frank E. Clark, Superintendent of the Plant, told me this was never purchased.

Company of Lynn, Massachusetts, for \$20,000, half of which was probably installed at the Hartford station. This machinery and apparatus was purchased from the Thomson Houston Motor Company of Lynn, Massachusetts, for \$20,000, half of which was paid by each, the Farmington River Power Company and the Hartford Electric Light Company. This was certainly a pioneer in generating hydroelectricity at one voltage, transforming it to a higher voltage <sup>6</sup> for economical transmission for a considerable distance, and then stepping down the voltage to the pressure required in use.<sup>7</sup>

After examinations of all the records available, it is plain that Mr. Terry initiated the project of this development of hydroelectric power in one location and transmitting it in quantity to another place. The Hartford Electric Light Company, with its accustomed foresight and courage, cooperated in every way. The large amount of copper required in the original transmission line and its maintenance was burdensome in many ways. The installation of alternating generators with transformers for greatly increasing the voltage and conducting it successfully through highways, city streets, and conduits, was of great moment in the use of electricity.

The contract for five years expired in March 1896, and at that time a new contract was entered into with the Hartford Electric Light Company. This was to run twenty years and the price of the electricity was six mills per KWH. The two alternating generators, driven by belts from five pairs of water wheels, delivered the current of 500 volts to the transformers, which stepped it up to 10,000 volts. The number of transmission wires was then reduced from sixteen to six. On the morning of September 6, 1897, the powerhouse burned, but the plant was soon in operation with a brick powerhouse and machinery, which was operated until 1925.

The contract with the Hartford Electric Light Company made in 1896 was to expire in 1916. As early as 1912 the two companies

6. 4,000 volts.

7. Part of the power was used for lights and part for motors.

began negotiations for a succeeding period of twenty-five years, and at that time in their negotiations were only one mill apart in their ideas of price. The Hartford Electric Light Company offered to take all the power for \$.0055 per KH, and the Farmington River Power Company agreed to contract for \$.0065 per KH. The matter drifted along until 1916, the year the old contract was to expire. During the interim (1912-16) I had heard of the failure of the two companies to get together on a new contract, and had several talks with the President of the Farmington River Power Company, Edwin A. Bennett, with a view to buying all their power and running a transmission line to New Britain.

While the twenty-year contract was in existence, the twenty-five-dollar par value of the company's shares rose to over fifty dollars and paid 8% dividends on the par value regularly for several years. At the time of the expiration of the contract, the shares outstanding were six thousand, calling for dividends of \$12,000 yearly with a gross income of about \$25,000. In the years that had elapsed since the contract was made, the wooden dam raised and the machinery installed, much of it had become obsolete and would have to be replaced for continued operation. In the reports of the treasurer to the directors, profits were shown, making insufficient allowance for depreciation and obsolescence. I have not thought it necessary to examine the treasurer's books, but it is apparent that in ignoring that item in figuring their profits and voting dividends, the directors and officers found themselves in a position where they had to sell out or raise new capital, if operation were to be continued for any length of time. The proposition made in 1912 by the Hartford Electric Light Company was a fair one and would have warranted the financing necessary for new equipment. Be that as it may, the stock declined from over \$50 a share to a little below \$25 during the last years of the old contract.

Just before the old contract with the Hartford Electric Light Company expired, that company had refused to renew the old contract, but had proposed a temporary arrangement for six months. I had kept in touch with the situation and had come to

the conclusion that with the expenditure of some capital there could be a very dependable hydro development on the Farmington River with the plant of the Farmington River Power Company as a nucleus, and that it would be much better to buy the control of the Company than to contract for its power. The minutes of the Directors of the Farmington River Power Company of July 13, 1915, record that Messrs. Shipman and Thompson were authorized to take up the question of a contract with "third parties." After several conferences with E. A. Bennett, the President, and several of those most interested, The Stanley Works made the Farmington River Power Company a proposition for control and operation of the plant. In July 1916, as all of our proposals were not entirely satisfactory to them, they appointed a committee consisting of Edwin A. Bennett, Arthur E. Shipman, and Douglas H. Thompson to confer with us. In the negotiations for purchase, Mr. George P. Hart, President of The Stanley Works, joined me. We obtained from the above-named committee an option, dated August 1, 1916, to purchase 3,046 shares at \$25 a share on or before November 1 of that year. Later the option was extended one month. The Directors' meeting of the Farmington River Power Company of January 12, 1917, records, "On December 1, 1916 The Stanley Works by its Vice President, E. A. Moore, made demand on said Arthur Shipman for the delivery of said 3,046 shares to that Company and on said day your committee transferred to The Stanley Works the shares of twenty stockholders, the total number of shares being 3,223 and more than a majority of the 6,000 outstanding shares of the Company." We also agreed to take any or all other outstanding shares at the same price, and all but twenty-one shares were offered and taken. The last meeting of the directors with the old officers was February 26, 1916.

We immediately began getting a right of way to New Britain. In this work we found Frank E. Clark, with his former experience, invaluable. New transformers were installed, stepping up the power to 22,000 volts. This higher voltage relieved part of the copper wire, which was used in the New Britain extension

of the transmission line. In less than three winter months we had not only obtained the rights of way for the twenty-two miles of transmission line, but had also erected it, installed transformers at both ends of the line, and were delivering power to New Britain. We were fortunate enough to have the Connecticut Legislature in session that winter, and the General Assembly passed an Amendment authorizing the Farmington River Power Company to transmit power from its plant on the Farmington River to New Britain. This was approved May 19, 1917. Current was transmitted over the new line in February 1917.<sup>8</sup> Thus the dream of the Company's former President, William H. Hart, came true.

However, this was not the end. The old plant was about obsolete, the dam weak and the head only twenty-three feet. About one and one-half miles below the plant were the Vernon Paper Mills with their ten-foot dam, which I had hoped could be included in developing the power. Surveys showed that a dam of nearly sixty-foot fall could be erected at the Vernon site. The Vernon brothers were getting along in years and rather glad to retire. Their business was not very profitable, competition was severe, and their plant and machinery old. On October 31, 1918, The Stanley Works bought their property, thus making possible a hydroelectric plant large enough to more than supply our New Britain plants.

After the purchase of the Stanley Rule and Level Company in 1920, the total power required for all plants was increased. We had been very successful in annealing steel by electricity, and as that could be done largely at night and on weekends, our use of power was very favorable toward a profitable hydroelectric development.

In 1921 or 1922, I learned that the New England Power Company, of which H. I. Harriman of Boston was the moving spirit, had about completed the several developments at Brattleboro, Shelburne Falls, etc., and had no other immediate construction projects in anticipation. Appreciating that here was a most com-

8. A bill from the Farmington River Power Company to The Stanley Works, April 1, 1917, for service for March is the first charge.

plete organization—engineers, electricians, draftsmen, purchasing department, equipment of every kind, and a most valuable experience in New England water power construction work, I made several appointments with Mr. Harriman, and he was persuaded to let us have, for a year, his subsidiary, the Power Construction and Engineering Company of Worcester, its President, George S. Hewins, and the entire organization.

In 1920, at my request, Mr. I. W. Jones, of Milton, New Hampshire, an engineer experienced in water power development in New England, had begun planning a hydroelectric development at the Vernon dam at Rainbow, to flood out the old plant at Oil City and utilize all the fall in the river below the Hartford Electric Light Company's plant near Tariffville<sup>9</sup> on the north, as far as the rights of the Dunham Hosiery Mill privilege down the river. Careful surveys and borings were made, and after the usual investigations and estimates a most complete report was submitted on April 21, 1921. In 1924, Mr. Jones brought his report up to date as far as costs and use of the power were concerned. The original plans, with minor changes, were later used for the construction of the Rainbow Plant.

About this time (1921), I approached the Connecticut Light and Power Company through its President, J. Henry Roraback, with a view to selling them surplus power and buying power from them, if needed. In this negotiation later on, Maurice H. Pease of The Stanley Works was of inestimable value. On October 27, 1922, a contract was entered into with the Connecticut Light and Power Company which, with few modifications to meet new conditions from time to time, is now, ten years later, still in existence. This contract has been of material value. Although the price at which we sold our surplus power seemed very low and the price for power purchased from them high, there were many other things beyond those factors which made the contract mutually advisable. We had a customer for most of the surplus

9. This plant had been built on the site which I had found many years before, standing in the name of D. Newton Barney, a director of the Hartford Electric Light Company.



power we could generate, they a considerable quantity of very cheap power. When they bought the utility company, supplying electricity to Windsor Locks and adjoining towns, they used our transmission line from New Britain, thus saving them a large sum, but it reduced our line loss as they had to keep the line energized to enable the power to reach Windsor Locks. We could have tried to contract with the Hartford Electric Light Company for the sale of surplus power, but did not approach them as it seemed to me that our long-time interests with powers on the Housatonic River lay with the Connecticut Light and Power Company, who owned most of the power there and by charter rights could sell to us in New Britain.

In 1924 The Stanley Works was in such excellent financial condition that it easily could and did loan the Farmington River Power Company the funds for a new plant.<sup>10</sup> A contract was entered into on December 31, 1924, with the Harriman Company, the Power Construction and Engineering Company of Worcester, with the I. W. Jones Company furnishing complete plans and cooperating as engineers in every way. As a large part of the cost was to be in materials and machinery, our agreement called for The Stanley Works' Purchasing Department to approve all purchases and buy whenever they could get better prices than the Construction Company. As the overhead and interest was quite an item, arrangements for an early completion of the plant were mapped out and more than lived up to. Ground was broken just before February 1, 1925, and on November 16 of the same year power was transmitted to The Stanley Works' plant in New Britain. In less than ten months the water wheels, generators, and most of the equipment had been constructed especially for the plant, the pole line to New Britain reconstructed, the dam and powerhouse built, the tailrace excavated, and a great dike built. In regard to the latter, a word is in order.

The plans of Mr. Jones, confirmed by the Construction Company, called for a cement core the entire length and height of the dike. At the point we selected for the dam because of good

10. The amount in total was \$1,066,408.

rock bottom ascertained by borings, the land on one side was much lower than the crest of the dam, and required a wing running along one side of the river upstream from the dam, perhaps one-fifth of a mile, until it connected with land higher than possible flood waters over the dam.<sup>11</sup> The cement core called for an estimate expense of \$50,000. I had known of and seen the work at the Gatun Dam and other places where high dams had been constructed by puddling the proper materials and omitting a core of cement. I got the most eminent hydraulic engineers in the country<sup>12</sup> to consider the problem on the spot and they agreed that if we could find the right material for building the dike, it would be safe to omit the cement core. Instead of puddling a central portion they all advised carrying up the dike layer by layer, rolling with a heavy roller one stratum before adding another. We were fortunate enough to find the right mixture of clay and sand just above the dam site where we could bring down the material by gravity, and were able to omit the core. Having taken this responsibility on my own shoulders, I worried for some years lest an unprecedented cloudburst might carry away the dike and cause loss of life as well as property. However, more than ten years have passed and floods beyond any former record have occurred, and I no longer apprehend any likelihood of danger.

When it came to the construction of the plant, I was in rather bad health. I had overworked when carrying the responsibility of the New Britain Machine Company in addition to my Stanley Works duties and was obliged to be away from home during

11. The fixed top of the dam is 128.4, the top of the dike (52 feet wide at water level) is 143, leaving 14 feet 6 inches for difference.

12. These engineers were George S. Hewins of the Power Engineering and Construction Company, A. C. Eaton, hydraulic engineer of that organization, and Albert S. Crane, Vice President and hydraulic engineer of the J. G. White Engineering Corporation. Mr. Crane visited the site on May 19, July 21 and 27, 1925, during the construction, for observation of the work in process, and there is on file with The Stanley Works a letter giving his opinion of the safety of the dike. There is also a similar letter from Mr. Hewins filed with The Stanley Works.

the winter. After the war Major M. H. Pease had come into the Company's employ through the purchase of the Stanley Rule and Level Company. He was a graduate of Yale and the Massachusetts Institute of Technology and had had practical experience with Stone and Webster of Boston as an electrical engineer. He took charge of the construction, and the excellent record of its completion and the thoroughness with which the work was done were due in large manner to him. However, no one could have accomplished so much without the hearty cooperation of the Power Engineering and Construction Company's President, George S. Hewins, I. W. Jones, and our own force, especially the efficient work of the Purchasing Department, under Vice President E. W. Christ.

On December 8, 1925, The Stanley Works invited men throughout the state, who we thought would be especially interested, to a formal opening of the plant. The pamphlet prepared for that occasion contains much about the history of the Farmington River Power Company and the new plant.<sup>13</sup> The latter has a head of fifty-eight feet, and the power plant consisted of two S. Morgan Smith water wheels with vertical shaft, each connected to a 5,000 KVA General Electric Company generator. It is fully controlled automatically and at the time of installation was the last word in such apparatus. Transformers stepped up the voltage to 66,000. This was not necessary for the twenty-two miles of transmission lines, but enabled us to tie in with several other companies for exchange of power when desirable, and resulted in very little line loss.

In the presence of our visitors on that December 8, 1925, after some post-lunch formalities, I threw in the switch and slowly started the plant, which soon came to normal speed. Now in 1937, as I write this, the plant has been in operation eleven years, day

13. There are two errors in the pamphlet we printed for distribution at the time. The pamphlet states that the two alternating current generators were 350 KVA and were installed in 1896. The date should be 1893. The plant burned September 6, 1897.

and night, and with no interruption as to the plant. Very short interruptions have occurred from the power line from causes beyond our control.

The total cost of the new development was \$1,066,408. The funds were borrowed from The Stanley Works. In 1921, at the time the Jones report was made, the cost was estimated at \$1,041,000. A revised estimate on the basis of costs in 1923 was \$1,000,000. Prices of almost everything were higher in 1925. If we could have built the plant in 1922, at least \$200,000 could have been saved, according to estimates made in that time. However, as always happens at the low point of a business cycle, we did not have the nerve to proceed with what seemed the uncertainty ahead of us, nor could we have had the assistance of the Power Engineering and Construction Company of Worcester.

It is interesting to note that in a report I filed in 1923 with the Jones report, I *estimated* The Stanley Works could use 15,500,000 KWH annually, and that there would be secondary power of an average of 13,500,000 KWH with the proposed installation a total of 29,000,000 KWH. Our records show that for the first eleven years' operation (1926 to 1936 inclusive) the actual power generated plus the power lost due to insufficient load was an average of 28,595,000 KWH annually. Of this the Farmington River Power Company sold to The Stanley Works and others an average of 24,000,000 KWH.

It is rather difficult to determine the savings to The Stanley Works achieved by this hydroelectric development. For, as I noted in my report in 1923, above referred to, I said, "Compare a modern turbine steam plant of 3,000 to 5,000 KVA capacity, that is what the competition should be, not what we are doing now." We made enough estimates to convince ourselves that no coal- or gas- or oil-burning plant could prove as profitable as this hydroelectric development. We *did* know the lowest price we could contract for power with the Connecticut Light and Power Company, with their low costs resulting from the operation of their very efficient steam plant at Devon, and their water powers on the Housatonic River. I was at that time a director in that



RAINBOW HYDROELECTRIC PLANT ERECTED 1925



company. A uniform price has not been charged The Stanley Works during the eleven years of operation, but during the entire period the charge per KWH has been less than the cost at which we could buy or generate the same amount of power at New Britain. In fact, more than enough less to offset the interest due The Stanley Works for the capital loaned for the construction of the plant in 1926. This loan of \$1,066,408 was paid in 1935 in full out of earnings. Charged as expenses during the first eleven years of operation were: depreciation \$368,000 and taxes \$198,000, as well as \$197,000 for electricity purchased during periods of insufficient water and which was sold by the Farmington River Power Company to The Stanley Works at some loss. In few words, this plant has furnished all the power required by all the plants of The Stanley Works in New Britain, except the Whiting Street plant of the Stanley Rule and Level Division, at less than it could be purchased for or generated in New Britain; and has paid for itself in ten years. Since my retirement in 1929, the Farmington River Power Company has purchased the Dunham Hosiery Mill and other properties, so that now all available head between the Rainbow Plant and the Connecticut River is owned, and an auxiliary installation planned, to utilize the additional head, when needed; and deliver the power to the Rainbow powerhouse for distant transmission and distribution. This development at Rainbow thus took the place of the Kent project where about the same amount of power is available.

I know of no other manufacturing industry in Connecticut situated far from water power that by special charter generates and transmits such power to its plants with many of the rights of a public utility company. The charter of the Farmington River Power Company is probably the oldest of its kind in the state and should be preserved and guarded as one of the most valuable assets of the company.

## CHAPTER XV

### THE STANLEY RULE AND LEVEL COMPANY

WHEN William H. Hart was President of The Stanley Works, Charles L. Meade, who occupied the same official position in the Stanley Rule and Level Company, died. Fred M. Stanley was elected to the office. Within a few years, Mr. Stanley died, and there seemed no one connected with the business fitted to be its president. I therefore urged Mr. Hart to consider ways and means for consolidating the two companies. I think the idea appealed to him, but there seemed to be some compelling reason that prevented him from acting. At that time the presidency of the Stanley Rule and Level Company was filled by electing Charles E. Mitchell, a patent lawyer, who had lived most of his life in this city. He had been Patent Commissioner, and at the expiration of his term in Washington had become the head of a law firm in New York City. He was very prominent in the profession and highly regarded in his home town. Alix W. Stanley was then elected Vice President and became the active manufacturer and sales head of the business. He had formerly been connected with the Worthington Pump Company of New Jersey, but was very familiar with the tool business after the several years he had been connected with it.

In 1919 Mr. Mitchell had died and Mr. Stanley had succeeded him as President. George P. Hart was Chairman and I was then President of The Stanley Works. In the spring of that year, Mr. Stanley was considering retiring, and had talked with several persons in regard to selling his large interest in the company, which, it was assumed, would carry its control. Some of these conversations were with Howard L. Platt, who was not connected with either the Stanley Rule and Level Company or The Stanley Works. George P. Hart and C. F. Bennett of the latter company took part in some of the talks. In the summer Mr.



Stanley was on Martha's Vineyard Island and Mr. Hart, through his brother Howard, discussed the sale of Mr. Stanley's stock, but neither party would consider paying the large federal tax involved in the transfer of the shares, and the matter was definitely dropped. All the negotiations had been limited to the sale of Mr. Stanley's shares in the Stanley Rule and Level Company.

The following October I went to Japan and China, and on the long journey had ample time to meditate about The Stanley Works' business and its future. Before returning in January, I made a record on paper of the things I was determined to accomplish. Among them was the purchase of, or at least the control of, the Stanley Rule and Level Company by The Stanley Works.

Years before this I often visited my intimate friend, J. Earnest Cooper, in his law office for a friendly chat or for legal advice. He was the son of Dr. J. W. Cooper, who officiated at my marriage. I considered Earnest one of the best lawyers in the state. However, I did not think he was making the most of his talents. After considerable persuasion, Mr. Cooper agreed to come to The Stanley Works' office for an hour or two each morning on his way to his office, to look over contracts and discuss any problems, especially legal ones, that I cared to go over with him. The arrangement had proved so satisfactory, and Mr. Cooper had shown such an interest in the general conduct of the company, that before starting, in October 1919, for the trip to Japan and China, we changed the arrangement in September of that year. By the new agreement he was to spend half his time on Stanley Works' business on a regular salary basis, and he was so employed when I returned from the Far East.<sup>1</sup> Immediately after returning from China in January, 1920, I told Mr. Cooper that I believed we should buy or at least control the Stanley Rule and Level Company, and that I would like him to give up everything else connected with our business

1. Later Mr. Cooper gave up his private law practice and became a full-time salaried officer, a member of the Board of Directors, Vice President and Counsel of the Company. With the changes brought about by new tax laws, and with subsidiary plants in many places, his interest in the welfare of the Corporation made his connection with it most valuable.

and see what could be done to accomplish it. We discussed the tax situation at length in buying the A. W. Stanley interest, and it was determined that Mr. Cooper was to see what, if anything, could be done to overcome the tax difficulty. He finally, after repeated discussions with Mr. Stanley and myself, proposed the plan which was followed and was, as far as we knew, the first of its kind by which a large stockholder could dispose of his stock and avoid for a long time paying a federal tax on any possible profit. On this plan, The Stanley Works was to buy all the assets of the Stanley Rule and Level Company by issuing its preferred stock. An investment company was to be incorporated, called the Stanley Securities Company. A stockholder of the Stanley Rule and Level Company was to have the privilege of receiving all his proportion of the purchase price either in cash or in preferred shares of The Stanley Works, or in the shares of the Stanley Securities Company, or a portion of each as desired. This enabled the small stockholder to take payment in cash or hold his preferred shares, and the large owner to hold his capital investment without tax, at the time, if he so desired. The plan, after a good deal of haggling by the principals over the price, was finally adopted and approved by the Directors and stockholders of The Stanley Works and the Stanley Rule and Level Company.

I have always remembered with profound gratitude the confidence of the Directors of The Stanley Works in approving this purchase, on a few hours' notice, when for good reasons the entire negotiations had been known only to a very few persons.

Through the entire period of my service as President and Chairman of the Board of The Stanley Works, the Directors never failed to back me up with their confidence and votes. They seemed to feel that if I made a recommendation which might be considered by them as questionable, they would approve and look to me to make good. I believe no major development of the business went wrong during my administration, although I must confess some ventures, such as the Stanley Chemical Company, came very near it and would have done so without the stout hearts of W. S. Rowland and his associates.

The purchase of the Stanley Rule and Level Company greatly strengthened our influence with our hardware customers, for its products were considered by artisans and experts as the best of their various kinds in the world. Because of their nature, they were used by the public personally, and thus the Stanley Rule and Level products became known by the public throughout the world even better than The Stanley Works products with their much larger sales. The purchase of this business was the most important transaction in The Stanley Works' history.

The employees of the Stanley Rule and Level Company were naturally much disturbed over the sale. Soon afterwards I tried to allay their fears and have them see the situation as I did, believing that the purchase would soon benefit those connected with both companies as well as the stockholders and public. Below is the press report of my talk to them.

I have been asked to say something about the purchase of the Stanley Rule and Level Company by The Stanley Works. Many people ask me if we made a good purchase, just as though the trade is like buying a barrel of standard granulated sugar. Did we get less than a barrel, or did it weigh more than we expected, when the head was knocked in? It was not that kind of a trade. It was more like buying a beautiful orchard of mature fruit trees. What they are worth depends on what you can get out of them and what you can get out of them depends on how you treat them. No, the value of the purchase is not yet determined and will not be known for years to come. It will be worth what the organization of which you are a part determines to make it. It is most gratifying to me to observe the enthusiasm and loyal support that the Company is receiving from the Stanley Rule and Level Plants. Nor is it less pleasing to see the friendly reception of these men in conference and cooperation.

It looks to me as though you are bound to make the purchase an excellent one. The beauty of it all is that both parties can get the best out of it. It is somewhat difficult to so arrange a trade, but in this case I believe it has been done. Those of you who held Stanley Rule and Level stock could get in cash all it was worth and by putting the proceeds into Stanley Works' stock, you transferred your interest into the company you are now associated with. With proper operation, this combined business should prove more stable and profitable than either corporation run separately. In a word, while we probably paid all the Stanley Rule and Level

Company was worth to them, nevertheless it will be a good purchase because we will make it worth more to us.

It was a unique deal in many ways. It required little ready money and for that reason avoided any local financial disturbance. For a purchase of such magnitude, it would usually have been necessary to get some strong financial institution to underwrite the deal. This would have been expensive. As it was, no financing of that kind was necessary and all of the money paid by the purchaser was received by the buyer and neither paid anything to the bankers. If The Stanley Works had bought the Stanley Rule and Level Company for cash and had sold through the usual banking channels \$6,000,000 preferred 7% stock, I am quite sure it would have cost three-quarters of a million dollars, which would have necessarily been paid by the stockholders of both companies.

The deal was a purchase, but inasmuch as any stockholder of one company could easily transfer his interest into the other, and as all men of ability are needed for the development of the corporation, it was in fact a merger of the going businesses. In its immediate development, the same principles that have governed my action in the past will be a guide for the future, viz.: the desire to have promotions made and positions of responsibility filled so fairly that the action will be approved by the public opinion of the organization.

The effect of the merger on every man should be to open up greater opportunities. The responsibilities are greater and the places available for advancement more in number. We can by proper spirit and endeavor make both companies stronger, united as they are, and our own position of more value and our influence with the trade greater.

With the Stanley Rule and Level Company came Messrs. Alix Stanley and Meigs Whaples into the directorate, Robert N. Peck, his brother Albert W. Peck, Joseph E. Stone, Philip B. Stanley, Maxwell Coe, Sam Armstrong, Benjamin Wilbur and many others who greatly strengthened the organization.

A few years later, during the years when investment companies and banks were putting out new securities, J. P. Morgan and Company's men came to me with a proposition to combine most of the good tool manufacturing industries of the country. Although we could have sold out or combined the Stanley Rule and Level business at a considerable profit, we determined, after several conferences with the bankers and prominent tool manufacturers, that it was unwise and possibly unlawful. Their stipu-

lation that our officers should head the new organization did not appeal to me. I had been through strenuous years during the war and we had not fully digested the Stanley Rule and Level Plant purchase, and I had no desire to tie myself down to the job with a new set of directors, probably controlled by bankers.

This purchase of the Stanley Rule and Level Company's goodwill, etc., in 1920 has added to the prestige of the Company and has been a profitable investment. It was entirely paid for by The Stanley Works' issuing \$5,800,000 in preferred shares. There was no underwriting expense, as the principal sellers agreed to take the stock as payment. The preferred shares bore 7% interest and were callable in five years. By 1927 The Stanley Works was in excellent financial condition and money rates were lower than when the preferred shares were issued. At that time I entered into negotiations with the Stanley Securities Company, principal holder of the preferred shares. By calling and purchasing enough preferred shares to reduce the issue to \$3,500,000 and agreeing to continue a new issue to replace the old for another period of five years, the rate was reduced to 6%. Eight and one half years later, after I had resigned as Chairman but was still a member of the Finance Committee of the Directors, I urged the officers to see if it were possible to reduce the rate still further to 5%. The reduction was finally accomplished and made effective May 15, 1936.

Soon after the purchase of the Stanley Rule and Level Company, it seemed to me that eventually electric power would be substituted for human muscle in wood and metal working tools. Small motors were being perfected, electric current was available in so many places that hand power must give way to less tiring methods. As my talks with the men in the Company got little enthusiastic response, I arranged in 1922 for Byron F. Stowell of Springfield and his son Austin of Ansonia to be employed and see what they could do. They were both excellent men and of good engineering skill. The father had shown inventive ability, and there was reasonable expectation for results in producing some electrically driven tools. Early efforts seemed to be attach-

ing electrical power to the old hand tools. Perhaps the atmosphere, filled with the thought of generations of leadership in hand tool manufacture, made the entrance into the world where the new magical power was to do the work, a most difficult one. However, other inventors were at work and did produce some practical motor-driven tools. Several of these were purchased in 1929, and those, with an electric drill, which we had made previously, formed the nucleus of an electric tool department which has been developed most successfully.

My wife, who seldom made any suggestion in regard to the Company's business, was insistent that electric tools should be made. Looking back I am conscious of being negligent in not taking more forceful steps for the rapid development of this work.

## CHAPTER XVI

### HISTORY

*An Historical Sketch of The Stanley Works*, printed in 1935 for the Tercentenary Celebration of the State of Connecticut, contains several errors. As some of that pamphlet covers time and transactions known most intimately to the present writer, it seems fitting to call attention to the errors as a matter of record.

The *Sketch* states, "In 1911, The Stanley Works formed The Connecticut Metal and Chemical Co. to reclaim values from metal waste and another by-product, sugar copperas, which is used in the manufacture of red paint. Although this was entirely a separate business, requiring and receiving specialized manufacturing and selling direction, in the beginning it was carried on at the main plants of The Stanley Works in New Britain. As this undertaking developed into a major business and the lines were increased to include brass and bronze castings, paints, lacquers and other chemical products, it outgrew its divisional quarters at the hardware factory."

The facts are that the present Stanley Chemical Company was born in very modest quarters in Bristol, Connecticut, and was not "in the beginning . . . carried on at the main plants of The Stanley Works in New Britain." Neither did it have anything to do with reclaiming sugar copperas from acid wastes. That was done later by The Stanley Works. William S. Rowland should have the credit for the birth of the present Stanley Chemical Company. The story of its beginning is told in Chapter XI.

That *Historical Sketch* also says that the "policy of purchasing existing corporations, had gone on for a quarter of a century." With the exception of the purchase of the Canada Steel Goods Company, I know of no other purchase of the kind except a very small plant making box strapping and involving an expense of

only about ten thousand dollars, from 1890 until the purchase of the Stanley Rule and Level Plant in 1920 when I was President. In the meantime the Company had sold out its tack business and let the Bridgeport Rolling Mill Company (later the American Tube and Stamping Company) slip through its fingers. There were several other occasions before I was a Director when the purchase of other interests was considered most seriously and then abandoned at the last moment without sufficient apparent reason. Several of these would have hastened the growth of the Company and one of these might have resulted in a very large company in the steel business. In the late 'nineties the Hart and Cooley Company of Chicago was developing a good business in cold rolled steel in its district. The Stanley Works was doing the same in the East and, geographically between them, the Superior Steel Company at Pittsburgh was making the best headway of any company in this industry. Representatives of these three companies (none of whom made steel) spent several days in trying to work out a plan to merge, with a central plant at Pittsburgh to supply the three companies with raw material. If this could have been done, the resulting company could have dominated this industry which became, owing to the tonnage required for automobiles, a very large one. Perhaps the need of capital for proper development and the fact that The Stanley Works' officers were primarily interested in the manufacture of hardware, defeated the merger. The decision may have been a wise one. This was several years before I was either an officer or a director.

In 1904, after considerable negotiation in Erie by George P. Hart and myself, the Griffin Manufacturing Company of Erie, a competitor now for years in both hardware and cold rolled steel, offered to sell out, but the purchase was turned down at home because of a small difference in price. Later the competition cost us many times the price asked.

The same thing was true of the Lawrence Brothers of Sterling, Illinois, where George P. Hart and I succeeded in obtaining a fair price for their business. Failure to take over their plant resulted in



having not only its competition for many years, but also that of several other companies, offshoots of the Sterling Plant.<sup>1</sup>

I am inclined to think the failure to develop The Stanley Works in these cases and in the case of the Stanley Rule and Level Company, as told in Chapter XV, may have been a matter of personality. During those years, William H. Hart was dominant in the business, and perhaps the possibility of having in the organization personalities about whom he knew little, made him reluctant to change the situation. In any event, The Stanley Works lost from 1890 to 1920, several opportunities to enlarge the business very considerably. The Niles and Bridgewater Plants were extensions of our own facilities. No additional business was acquired by the construction of the former or the purchase of the latter. In fact, contrary to a statement in the Tercentenary *Historical Sketch* referred to,<sup>2</sup> during the first twenty years of the century when enlargement of well established companies by purchase of smaller or weaker ones was common practice, except for the Canadian purchase, every move made by the younger members of the official family was vetoed by the "elder statesmen" or the Directors.

As a matter of history it should be recorded that while President, and soon after the purchase of the Stanley Rule and Level business, I tried to enlarge the line by buying the Russell Jennings Manufacturing Company, makers of the best auger bits in the country, but was not able to do so. I also had, about the same time, several conferences with principals of Henry Disston and Sons, but could find no common ground that would benefit both companies in close connection.

1. The purchase of their hinge machinery from the Acme Manufacturing Company in 1913 brought no business or additional lines of manufacture, but did rid us of a very annoying small competitor.

2. The statement may be true as far as the Stanley Rule and Level Company is concerned, which at the time of the Tercentenary *Sketch* was a part of The Stanley Works, but is not true of The Stanley Works during the first twenty years of the present century.

## CHAPTER XVII

### THE JAPANESE PLANT

**I**N 1918 George P. Hart, then President of The Stanley Works, bought a controlling interest in a small company, called the Crescent Works, making butt hinges in Japan. This company had been started with the dual ownership of American and Japanese citizens. With the low wages of faithful and industrious workers, it was expected that the plant would become a factor in supplying the increasing demand for some lines of light hardware in the Far East. The Stanley Works later bought out the other interests, moved the plant from Kobe to Osaka, and sent from New Britain some simple machines under the management of Herbert E. Johnson.

Alexander L. Rae, our sales representative in the East, was of exceptional value in all of the negotiations and conduct of the Japanese project.

In 1919 Mr. Hart had decided to visit the plant and make a survey of the sales possibilities. He was obliged to give up the trip and Mrs. Moore and I substituted for him and his wife. We found Johnson doing well and the plant producing well-made goods.

Later on conditions in that country changed radically and we thought it wise to abandon the manufacture of goods in Japan.

## CHAPTER XVIII

### THE EUROPEAN PLANT

IN 1920 Josef vom Bruck of New York made several calls at our New York warehouse, and became acquainted with some of our men, especially with Edward H. Hart, in charge of our export sales. Vom Bruck learned much concerning our business, and asked Mr. Hart to make an appointment with me. This was done, and as early as February, 1921, we met in New York. He had come to see me at the request of Friedrich Carl vom Bruck, his uncle, who lived in Düsseldorf and was manufacturing hinges and many of the articles we make, at Velbert in the Ruhr Valley, Germany. He told me that from very modest beginnings made by Carl vom Bruck's father, the business had prospered steadily since his son, in 1896, succeeded to it. Ten years later the growth required so much additional room that a new plant was constructed on Langenberger Road in Velbert. The growth of the company had been steady, and now in 1921 six hundred men were employed. The owner, he said, was considered the most capable manufacturer in Germany. He had learned about the Taylor system in our country, and had many advanced ideas about the obligations of employer and worker toward each other. J. vom Bruck had made the appointment at the suggestion of his uncle, with the objective of finding if some consolidation of our companies could not be made. Our export department was having trouble in selling our cheaper lines over most of the world, owing to our high cost of labor, although, because of our superior machinery, our losses were small. During the first half of 1921 we considered carefully the advisability of having some mutual interest with this German company, but finally decided against it. Conditions in that country were very unsettled, reparations had to be paid, and we thought the advantage the Germans had in low wages might be offset by other disadvantages, so I declined an

invitation to visit the Velbert Plant, and in May definitely ended the negotiations for the time. The vom Brucks, however, renewed their proposals in August and October of the same year, but to no avail.

In 1924, conditions in our export department were not satisfactory, so another trip to Europe seemed necessary to see if it were possible to buy the Stenman Plant at Eskilstuna, Sweden, the most efficient plant in Europe making hinges. William H. Hart had, in the late 'nineties, laid the foundations for an export business, and it had been a considerable part of our hardware product for over a quarter of a century. The Stenman Plant was our hardest competitor; not because it was better located (the raw material came from Germany or Luxemburg), but because it was the best plant abroad and the business was excellently conducted. The man, A. Stenman, who with great ability had developed this plant at Eskilstuna, had recently died, leaving the control and most of the ownership to his daughter. Her husband, Baron Okleheim, acted for her. I spent a week in Stockholm trying to come to terms, but failed and started for Paris. When almost there I received a telegram from the Baron asking me to return. This I did, although traveling in Europe was most uncomfortable at that time, and especially so in Germany. The offer finally received was unsatisfactory.

The next year, 1925, I determined to find, if possible, just what advantage, if any, our European competitors had, and whether it was advisable for us to try to hold our foreign trade. With that in view, E. W. Christ, a Vice President of the company, who was very familiar with buying and steel costs, and I went to London. There we employed, as secretary and courier, an Englishman, Gilbert Parsons, a graduate of Manchester University. He had been interned in Austria during the war, and was familiar with practically all the European languages, speaking most of them fluently.

After investigating the conditions on the British Isles, we went over to the Continent, where we went from country to country getting the costs of all the items entering into our line of manufac-

ture. The conditions in France, Germany, Belgium, Luxemburg, Italy, Norway, and Sweden were all investigated.

My friend, John Otterson, then acting for the International Western Electric Company, had been in Europe during the winter of 1925 on much the same kind of survey for his company as I was making for The Stanley Works. A letter from him, written at Antwerp, was received at New Britain, and its contents cabled me. He came over from London to Paris for a day together, to exchange information. He had been in Spain, Austria, Czechoslovakia, and Hungary, where I had not been. Our comparison of information was most useful in crystallizing our impressions. We both had excellent letters of introduction, and had met and talked with leaders in industry and banking in many countries. On this trip I spent considerable time with the vom Brucks at Düsseldorf to see if we could purchase their plant at a satisfactory price.

Our European investigation showed that theoretically Belgium or Luxemburg should have lowest cost conditions, with Germany not far above. It may be interesting to know that the average hourly wage of some fifteen hundred females employed in the Fabrique Nationale in Liège, Belgium, at that time (1924) was eleven cents per hour, our money, while The Stanley Works' payroll for all females averaged thirty-eight cents per hour. Further, the Belgian girls looked very intelligent and were in many cases running machines to which men would be assigned in our Works. Furthermore, we found the costs of rolled steel there about one-half of our costs in Connecticut. We returned fully convinced of the futility of trying to compete in many lines of goods in such regions as the Far East and South America with our United States plants.

I had been very ill with influenza at Claridge's in London. Mr. Christ was most helpful in the business and very kind to me and thoughtful for my care and comfort. He went to Birmingham and other places, and collected very useful information. He had never been abroad before, and the trip was a valuable experience for him. However, he kept receiving letters from his wife, who was

not very well, that made him disturbed and anxious to return home. Therefore, arrangements were made for him to do so. I soon went down to Rapallo in Italy, for a short time, to recuperate.

On this trip I had a letter of introduction to W. Hallam Tuck, living in Brussels, who had been a Commissioner for the relief of Belgium and was an officer of Solvay et Cie of that country. He was an intimate friend of Millard K. Shaler, who at the time was a Director of the great company that operates in the Congo, familiarly called Forminère. Mr. Shaler also was active in the Belgium Relief during the war. These two I became well acquainted with, and they assisted me in every way in my business. They were interested with two brothers, Robert and Armand Dulait, who were making more than half the hinges used in Belgium, including our patented corrugated hinges. We had several conferences, and I found they were all quite ready to co-operate with us in every way, if we decided we wanted to buy their plant or business.

Returning alone on this trip, which had taken from February 21 to May 1, 1925, a report was made to the Directors promptly. It recommended that a plant for the manufacture of wrought steel hardware be established in Belgium, with the reasons therefor.

Since 1924 I had begun to have some bronchial trouble, which incapacitated me for such arduous work. Therefore, in September of the same year, instead of going abroad again so soon, we decided to send Richard E. Pritchard, expecting him to do the preliminary work, including the purchase of land and the construction of a plant at Antwerp, after which Clarence F. Bennett, the President, would join him. After the purchase of the land, Mr. Bennett, who had gone to Belgium, received a telegram from Carl vom Bruck of Düsseldorf and Velbert, asking him to go there. As he was sailing for home in a few days, he refused, but suggested vom Bruck come to him at Brussels, which he did. This resulted finally in our purchase in 1926 of the Velbert plant—the best of its kind in Germany—for a sum much below its

original cost. With this plant we have been able to meet all our competition and have operated it quite successfully.

When Mr. Bennett went to Europe (before we had thought it possible to purchase the Velbert plant), he bought the hinge business and property of Dulait and his associates in Belgium that I had recommended. With those obligations to be disposed of, and the many legal matters that would require a lawyer in connection with the vom Bruck purchase, Mr. Bennett came home, and Mr. Cooper joined Mr. Pritchard, who stayed on, and together they did a most creditable work in taking over the plant under unusual conditions. As soon as the Velbert purchase was completed, John C. Cairns went over to take charge for the new owners. Later we sent some of our best machinery to Velbert. One of the reasons that Belgium seemed to me the logical place for us to manufacture in was the political situation. Antwerp was one of the best ports in the world for an export business, and it seemed that, located there in a country desirous of being a neutral state, the danger of interruption in operation would be slight. However, as things came to pass, I should have realized that neutrals whose lands are suited for battle grounds are not immune to the horrors of war.

## CHAPTER XIX

### PERSONAL AND PERSONNEL

**A**FTER BEING made Director in 1903, I was elected second Vice President in 1905, first Vice President in 1915, President in 1918. On February 14th, 1923, when I became Chairman, the Directors changed the rules of the Board and continued me "as the chief executive officer" of the company "with general direction and supervision of the company's affairs."

Upon my resignation in February, 1929, the office of Chairman, which was created in 1915 to meet a special situation, was then discontinued, and the sole direction of the affairs of the Company was, at my request, placed upon the shoulders of the new President. I resigned as Chairman to take effect on February 21, 1929. Through George Hart's voluntary retirement when sixty-five, I had occupied the highest executive office for a reasonable period. When I had reached about the same age, I hoped that by abolishing the office of Chairman and by my example, the company would continue to be officered by young men. Also influencing me greatly was the fact that those associated with me—Messrs. Bennett, Cooper, Stanley, Walter Hart, Christ, Farmer, Pritchard, Pelton, Pease, Fellows, Coe, and many others—were then in their prime, and that the promotions occasioned by my step would not only ultimately be of benefit to the company but would be more appreciated by them then than later. With the exception of Mr. Farmer, who had worked with one other company previously, all of these men had come to The Stanley Works when, or soon after, beginning work in their youth, and were the most capable of a large number who had been in our employ. A few of the men connected with the company have been mentioned. The list of those, who, during my time, have been instrumental in the development of the Corporation, are so numerous that any tribute worthy of their contribution to it



would be impossible in writing a personal account of my own connection with the Company. However, it is most fitting that an exception be made in the case of the two men who followed me in the presidency of the Company.

Soon after I was employed by The Stanley Works, a young man, Clarence F. Bennett, was hired to work in the shipping room office. He had come from New Milford to work for a relative, who had a plumbing and tinware business. In the shipping room, and later in my manufacturing office, he had become very familiar with almost every part of the business. He always had the ability to get things done. That resulted in more and more responsibility. He improved systems and plans for whatever came under his jurisdiction. From the first he had been a loyal employee. Saving a little money and borrowing more, he was soon financially interested in the success of the business. He helped me greatly in my most active years. His habit of promptly attacking tasks put up to him made his desk a favorite place for me to deposit knotty problems, for they would be well done. At the time that I was elected Chairman, there was no doubt in my mind or in those of the Directors as to who should be elected President, nor when I later retired as active head of the institution, who should take the responsibility of its management. Besides being an excellent officer for The Stanley Works, he has justly taken a very prominent place in the community, and its debt to him is large.

I have told in another chapter that I had found the business needed more young men with good technical educations. One of the men who came to The Stanley Works at that time, 1906, was John H. Fellows. He was asked in 1914 to communicate with either the Massachusetts Institute of Technology or his Alma Mater, Dartmouth College, and find one or two men who had done well in their undergraduate work and whose personalities might eventually help them to fill a responsible position, just as he, Fellows, had been sought several years before. When he convinced one of the men who was then doing postgraduate work in the Thayer School of Engineering at Dartmouth that it would

be wise for him to come to New Britain and enter the employ of The Stanley Works in the Cost Department, he little knew he was providing for a president twenty-seven years later. Richard E. Pritchard was born in Rutland, Vermont, as good a state to be born in as any in the Union, and came in 1914 to Connecticut, the best state of all to work and live in. Three years later he volunteered for World War I, and came back to the Company at its end. His early work in the Cost Department soon demonstrated that he had a remarkable ability, not only for presenting information lucidly, but in deducing from it much intelligent suggestion for operation. At the time of my resignation, he was elected a Director and became a Vice President of the Company, and twelve years later the President. He was not given full control for the conduct of the business until some years after he was well fitted for the responsibility. However, he was very helpful in its conduct during the interim. Other presidents of character and ability have been especially fitted to serve The Stanley Works very efficiently under the conditions of their times. The present President, even with much more complicated conditions to cope with, is better qualified for the position than any of his predecessors. Few men have so many of the qualities required of a great executive.

## CHAPTER XX

### EARLIER AND LATER YEARS

WHILE I HAVE recorded the improvements in methods, processes and plants, and the organization and control systems for a fast growing industry, I was always cognizant that the stockholders had invested their money to make money and that all those activities were a means to an end. The average reader cannot envisage many of the things described. He can without doubt perceive what the results were and the progress made during the period of my service of about forty years and especially the quarter of a century when I was either of considerable influence in management or the responsible executive officer of the Corporation. Here are a few figures taken from the books of the Company and a brief review of its financial history: The original capital, when organized in 1852, was \$30,000. The business had had a very slow growth for almost the half century ending about 1890. Almost all the growth made in that long period was made during and immediately after the Civil War, that is, in the decade 1863 to 1873. Previous to the first date, practically all dividends declared were retained in the business. In this way the growth by 1865 had resulted in a net value of the business of about \$50,000. Then in the inflation period following the war, the business increased very rapidly, so that by 1873 the capital increased to \$300,000. The books of the company available do not show the sales in 1889, but two years later the total sales were \$435,000.

The years after the resumption of specie payment by the Federal Government were difficult ones. The Company was in no condition to weather the financial storm that came in 1873. Even when it was upon them, the Directors do not appear to have appreciated its importance for they voted a dividend of 20% in 1873. They were obliged to omit all dividends in 1875 and 1876

and paid only  $2\frac{1}{2}\%$  the two following years. It is probable that the continued existence of the Company was due to the persistent and determined effort of William H. Hart in borrowing money at that time.

In 1879 the capital was still \$300,000 and the net worth \$378,000. After ten years of struggle during which the Directors, regardless of the capital needs of the Company, paid dividends every year, the net worth had increased by 1889 to \$421,000. Of this increase of \$43,000, \$25,000 was net paid-in capital.

During the ten years previous to 1889, when I entered its employ, the Company had made little progress and its prospects seemed so poor to the public as well as to the Directors that, when in 1891 they voted to increase the capital \$75,000 from \$325,000 to \$400,000, it was not fully subscribed for by Directors, the stockholders, or the public. The latter could buy the rights to subscribe for the shares at par for almost nothing. The Directors later took at par the unsubscribed portion. From that time on the shares became more largely held by the public which seemed ready to subscribe for additional stock when capital was needed.

I was elected a director of The Stanley Works in 1903, at which time the net worth was about \$1,500,000 and the par capital 1,000,000. About twenty-five years later, when I gave up all active direction of the company affairs in February, 1929, the capital consisted of 13,000,000 par value common shares and 3,500,000 par value preferred shares, having a total market value on January 1, 1929, of more than \$37,000,000. The net worth was a little over \$27,000,000, based on inventory figures which proved very high in the succeeding years of depression. Whatever the true value, practically all but three million dollars of it had been earned in the preceding quarter of a century, in *addition* to the dividends paid during the same period.

Little has been said in this book of one phase of the development of the Company, not because of its unimportance, but because this is the story of my service, not a history of the Company. I was never Treasurer. During my earlier years, William H. Hart

held that office. He was followed by L. Hoyt Pease, and he by Louis W. Young. The rapid growth of the Company in the first quarter of the present century was financed largely by earnings, but its progress and development were in no way so limited. Whenever we were able to invest money in improvements or developments which bid fair to be profitable, we proceeded just as though the treasury were overflowing. Whenever there was need to do so, the Treasurer called upon the banks. Mr. Hart, when Treasurer, so far as I remember, never sold the Company's paper, always preferring to pay a little higher rate of interest, if necessary, to maintain direct connection with the source of the loan. There was hardly any considerable period from 1900 until 1925 that the Company was not borrowing money. When our percentage of growth was fastest, loans were at times as high as 25% of net worth. At one time when I was President, I think we were borrowing over \$2,500,000. If profits above dividends failed to keep pace with capital needs for growth, and loans were large, the stockholders at favorable times would be asked to subscribe in cash for additional shares and the proceeds used to reduce or completely pay off the obligations. One of the most difficult lessons for a manager to fix in the minds of his organization is that it is necessary to appreciate the difference between funds for capital investment which bring a return, and money spent for running expenses. Often in times of thin profits and the necessity of watching costs most carefully, we would find men of much ability giving no attention to improvements because economy in operation had been stressed so urgently. To the statement, "I didn't bring it up for I thought there wasn't any money," I would say, "There is a world full of it for those who can use it intelligently." In future years it will be well to remember this bit of financial Company history and the courage of its Directors and officers in taking reasonable business risks.

Regular Directors' meetings of the Corporation have for years been quarterly, with occasional special ones. Soon after becoming President, it seemed to me that a small committee of its most available or useful members could care for many matters promptly,

subject to report and confirmation at the next Directors' meeting. This committee plan was adopted, and has been of great help in getting quick and intelligent action when needed, and in avoiding unnecessary delay at Directors' meetings. The first meeting of the Executive Committee of the Board was held April 3, 1923.

While some of my efforts in improving process were of value, not those, but vision for the future and ability for organization was the reason for my many promotions and my prime value to The Stanley Works. Not only vision, but ability, was required to place responsibility on men well chosen for their fitness for their positions, to control, promote, or demote them justly and fairly, and to unite and inspire them in a great cooperative effort.

Buildings and machinery depreciate and become obsolete, and can only be kept up to date by adequate expenditures. Personnel, however, properly selected and promoted and demoted requires little monetary provision, for it pays its own way, and instead of deteriorating like the plant, should improve with age. Thus I am in hopes that my years of endeavor for the Company will bear fruit for decades to come. With the growth of the business and its variety of products, the necessity of selecting capable men to head, in their prime, the different activities of the Company, has become a major responsibility of the management.

## CHAPTER XXI

### MY STEWARDSHIP

**I**T IS DIFFICULT to evaluate any man's work, especially in his lifetime, but looking back after almost fifty years of familiarity with The Stanley Works' history and progress, I imagine that William H. Hart's courage in saving the Company financially in the critical period after the Civil War, his persistent insistence on quality and honest dealing, and his courage to borrow money to continue and develop the business when the stockholders did not provide sufficient capital to do so, should undoubtedly be considered the foundation that made possible the present organization. Neither should company historians of the future overlook the building up of a sales organization and volume by George P. Hart which may have made possible, and probably did, many of the expenditures and actions taken during the early period of my service. It is also possible that the building of an expandable institution devoted enthusiastically to a common purpose which has made possible the addition, development, control, and profitable conduct of units as different as the Stanley Rule and Level Company, the Stanley Chemical Company, and The American Tube and Stamping Company, will be considered of prime importance in the Company's history.

During the term of my service, besides the day-to-day growth of a well managed business in a prosperous country were some developments that were more than that. These added greatly to the profits and strength of the Company, and their story has already been told in these pages. However, in trying to determine in retrospect whether my service had measured up to the necessary qualifications of a good administrator, it would seem to me that the following should be considered as something more than routine day's work well done: The early development of a real steel business, resulting later in the purchase of The American

Tube and Stamping Company; the origin and development of a chemical company; the provision of a plant for production and transmission of cheap hydroelectric power for all the New Britain plants, and—last but not least—the purchase of the business of the Stanley Rule and Level Company.

While I have been fortunate to have my active years coincident with a remarkable growth of the country, and no such record could have been made under adverse general conditions, nevertheless the records show that my early work in the organization and development, and later in the management, of The Stanley Works resulted in considerably more than could be realized in floating down a stream.

My faith in the personnel and the excellent financial condition of the company has been fulfilled during the years of the recent depression, and confirms the trust I had in the organization. Using the surplus funds accumulated during the years 1922–29, notwithstanding the clamor at the time of certain Stanley Works' stockholders for larger dividends, the Company absorbed, after my resignation as Chairman, large losses in the depression, but did not break its long dividend record of regularly paying its preferred dividends, and also not less than 4% annually on the common shares. On January 1, 1940, the Company had a record of paying 4% or more every year for sixty years on the common shares; the average rate for those years is a little over 9% on their par value.

After a service of over thirty-nine years, I thought it proper to give the stockholders an account of my stewardship. A copy of that report follows, and also of my resignation and the resolution adopted by vote of the Board of Directors in accepting it:

#### TO THE STOCKHOLDERS OF THE STANLEY WORKS

I have now begun my fortieth year of continuous employment by this Corporation. As I am about to relinquish my office as Chairman of the Board of Directors, it might be expected that one who has been so long in your employ and has occupied the highest position in your Company,



should give you the reasons for his action and some account of his stewardship.

For the last few years the condition of my health has required long absences from home, and I can see no way of avoiding this in the future. In any event, the responsibility of developing the Corporation and directing its affairs should not be carried by anyone who is not in good health and able to attend to business regularly. For this reason I am asking the directors to relieve me at this time of the responsibility I have heretofore carried. During all the period of my service there has been unusual co-operation on the part of my associates and confidence on the part of the directors. The former have with enthusiasm entered into new plans for the development of the Corporation, and the latter have voted very large sums of money for the same purpose, evincing great confidence in the management during all the period of my responsibility to the stockholders and to them.

As this is the end of a long period of service beginning in a position of little responsibility and extending thru many promotions during the years of preparation for the duties of my present office required by your by-laws and the rules of the Board of Directors, and as it covers a period of great growth and development of the institution, it is perhaps fitting as I relinquish my active duties, to state some facts of the growth made during the last forty years. This progress is due to the combined effort of the organization and in no wise the result of the work of any one or two men.

In 1889, when I came to The Stanley Works, the business was a small one, altho in existence almost half a century. The conditions after the Civil War with decreasing values year after year were extremely difficult. During the seventies, no money was made in the business for four consecutive years. Conditions in the eighties were somewhat better, but the financial progress had been very slow, and there was little incentive to invest in the business. I remember that when the Company in 1891 tried to raise \$75,000 more capital, issuing it at par, a considerable portion of the stockholders did not avail themselves of the opportunity to subscribe. However slow the growth had been, the foundations of a good business had been laid in the quality of the goods made and in the very favorable position that the Company occupied in the trade.

The following comparisons might help to give you some idea of the conditions when I came to The Stanley Works, and as they are now. The money invested and the profits in *one* of our Canadian plants (we have three) are twice that of the whole Stanley Works in 1889. The Stanley Chemical Company at East Berlin, the Atha plant in Newark, New Jersey, the Eagle Square Plant at South Shaftsbury, Vermont, the plant

at Velbert, Germany, the plant at Niles, Ohio, also *each* have a larger investment and are each making a better return on the capital invested than did The Stanley Works in the late eighties.

On January 1, 1890, the indebtedness to the banks was about one fourth of the assets. Now the only indebtedness except current bills are the bonds to the amount of \$450,000 assumed in the purchase of the American Tube & Stamping Company and not yet due. The total market value of the stock was then less than \$400,000. Now it is over \$25,000,000. The only money subscribed by the common shareholders since 1914 for the development of the business was \$1,500,000 cash subscribed at the time of the purchase of the Stanley Rule & Level business. The policy of the management has been to pay in dividends all income not needed for the normal development of the Company and cash requirements for working capital.

Since you have put any actual cash into the business, the hydroelectric development of the Farmington River has been constructed at a cost of over one million dollars; over two million dollars of the preferred stock issued in 1920 to pay for the Stanley Rule & Level Plant has been retired; the German and the American Tube & Stamping Companies plants have been bought at a cost of approximately three million dollars and paid for with the exception of bonds to the amount of \$450,000 placed on the latter property before our purchase and not yet due; very extensive betterments have been made to these two plants and also to the main plant and to the Stanley Rule & Level plant at New Britain during this period; the Chicago warehouse has also been purchased and remodelled at a cost of over \$400,000. In addition to the amounts dispersed in dividends during the last nine years, these and other betterments have been made which greatly enhance the value of your business, and strengthen our position at home and abroad. We now control our own product from making our own steel to the finished goods. Our plants were never in better physical condition. Every one of your manufacturing properties is now earning a fair return on the capital invested. We have retained out of our earnings ample capital for normal growth and working capital, as well as reserve funds for any emergency likely to arise. We have no debts except the above mentioned bonds and usual current obligations. Our financial condition was never better. The accompanying report will more fully disclose the condition of the business and set forth some facts of interest regarding its growth and activities. The personnel that has been the real factor in the evolution of the organization is most capable and trustworthy and will carry on the business successfully. I am gratified to be able to lay down the burden of my responsibility feeling that I can do so

Norcan Jan 14 1929

To the Directors of  
The Naiting Works

I hereby tender my resignation as  
chairman of the Board to take effect  
at the close of the 86th annual meeting  
of the Stockholders to be held in  
February of the present year.

With sincere appreciation of the confidence  
cooperation ~~and~~ friendly considerations  
and much helpful assistance of the  
Board I am

Sincerely,  
Eugene

without any detriment to your interests, as I believe your business was never in a more favorable and secure position than at present.

E. A. MOORE,  
*Chairman.*

February 21, 1929.

Upon motion duly made and seconded the following resolution was adopted:

**WHEREAS:** Mr. E. A. Moore has tendered his resignation as Chairman of the Board, and recalling: Mr. Moore has continuously been connected with this corporation since 1889. He was elected a director in 1903, 2nd Vice President in 1905, 1st Vice President in 1915, President in 1918, and Chairman of the Board in 1923, all of which offices he has filled with credit to himself and with profit to the corporation. Coupled with his superior executive ability, he has demonstrated unusual mechanical skill and inventive genius. He has shown an analytical mind, a studious disposition, and a keen financial instinct—qualifications which have enabled him to render signal service to this corporation. He has made a constant study of business and manufacturing, both within and without the factory, and has introduced many methods and devices for efficient and economical production. His knowledge of the steel industry is equaled by few and he also has an intimate knowledge of the hardware and tool business. When he came into office he found a corporation solidly founded and well organized and successful. In conjunction with a very able body of associates and with the aid of the fine esprit de corps which has always pervaded this organization by his energy, by his persistence, and by his sound judgment, he has developed, extended and enlarged this great enterprise, increased its business, perfected its organization, and strengthened its foundation, and today he, his associate officers and all other employees—contributors all to this wonderful success may look with just pride upon the results accomplished.

**RESOLVED**—That the members of this Board, in accepting the resignation of Mr. E. A. Moore as Chairman of the Board of this corporation, wish to record their extreme regret at the serious impairment of his health, from which for several years he has suffered, and which impels him to seek relief from the burdens of this office, and while yielding to his urgent desire to be relieved, we wish to offer this cordial expression of our high appreciation of his long, faithful and able service rendered to this corporation during the forty years he has been connected with it, and our confident hope that relief from the mental and physical strain

that the exacting demands of this office have imposed upon him will result in complete restoration to health and a long life of comfort and contentment;

**RESOLVED FURTHER**—That the use of his office and of clerical and stenographic assistance be placed at his disposal and that in appreciation of his services he accept for the future a compensation to be fixed by the Salary Committee.

“God be thanked! Whate’er comes after,  
I have lived and toiled with men.”



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